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The NORTH CENTRAL ASSOCIATION QUARTERLY

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Fifty-fourth Annual Meeting of the North Central Association Will Be
Held in the Palmer House, Chicago, March 27-April 1, 1949

THE NORTH CENTRAL ASSOCIATION QUARTERLY

*The Official Organ of the North Central Association of Colleges
and Secondary Schools*

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ASSOCIATION NOTES AND EDITORIAL COMMENTS

ST. THOMAS MILITARY ACADEMY, ST. PAUL, MINNESOTA, ON THE ACCREDITED LIST

Somewhere in the process of transcribing the action of the Commission on Secondary Schools whereby St. Thomas Military Academy, St. Paul, Minnesota, was accredited, the name of that institution was omitted from the list of secondary schools published in the July, 1948, issue of the *QUARTERLY*. All readers are therefore urged to insert the name of the Academy in the roster for Minnesota on page 121 of that issue. The importance of immediate attention to this request is clear.

AN OVERVIEW OF RECENT ASSOCIATION ACTIVITIES¹

THIS is the Fifty-Third Annual Meeting of the North Central Association of Colleges and Secondary Schools and the third since World War II. You will recall that the Fiftieth Annual Meeting was cancelled on order of the Office of Defense Transportation. In its stead a business session was held during the week of April 3 to 7 inclusive at which there were present forty-three persons, these being the official personnel of the three Commissions and the Executive Committee of the Association. At that meeting there was authorized the continuance of all member institutions for the next ensuing year. Attention was given to all matters involving gross violations of the then

existing criteria and regulations for accreditation of member secondary schools and colleges. It was agreed that authority to determine courses of action should rest with the representatives of the Commission on Secondary Schools and the Commission on Colleges and Universities and that in the instance of all such violations, they be reported to the Executive Committee of the Association for such appropriate action as lay within the power of that body in accord with constitutional provisions. In essence a moratorium of one year was declared.

All officers and Commission members were authorized to continue in their respective offices for one additional year or until their successors had been appointed and elected. It was also announced at that time that the officers and Commission members would continue to provide not only all the usual services of the Commissions and of the Association but also new services in the forthcoming year.

Your Association through its leadership was instrumental at that time in encouraging the Armed Forces Institute to prepare a complete catalog of all the educational experiences available to the armed forces personnel and of setting up credit values therefor. Furthermore, it joined with the other regional associations in providing funds for publishing the *Guide to the Evalua-*

¹ This is a brief excerpt from Secretary Rosenlof's report to the Association at its Fifty-Third Annual Meeting, March 8-12, 1948.

tion of Educational Experiences in the Armed Services by the American Council on Education. Our contribution was \$3000, all of which has been returned to our treasury during the past year. The manual was endorsed by your Association and its recommendations were approved. Your Secretary was not only a member of the Advisory Committee of the Joint Army and Navy Committee on Education and Welfare but also of the Commission on Accreditation of Service Experiences of the American Council on Education which, following the cessation of hostilities, made recommendations as to accreditation policies for peacetime military service. These recommendations were approved by the Executive Committee of your Association. It should be a matter of great pride to all of us that we were represented in these activities and were in a strategic position to exercise much influence in guiding the destinies of educational affairs of the United States Armed Forces. That influence is still very manifest.

Your Executive Committee has endorsed the following recommendations of the Accreditation Commission:

1. That peacetime accreditation policies should be so designed as not to encourage men to leave school.
2. That credit should not be granted for basic or recruit training toward a high school diploma for men entering the services after the conclusion of hostilities.
3. That high schools should continue to grant credit in peacetime for educational experiences gained in service schools as recommended in the *Guide*.
4. That we continue to grant credit for correspondence courses as recommended in the *Guide*.
5. That we continue to grant credit for "off-duty class work" as recommended in the *Guide*.
6. That we encourage the continuance and extension of the use of tests of educational maturity such as the General Educational Development tests.
7. That such tests NOT be administered or recognized as a measure of high school equiva-

lence until after the class of which the man was a member has been graduated.

8. That for institutions of higher learning the *Guide* recommendations based on measured educational achievement or equivalence in experience be continued and extended in the peacetime programs.

The foregoing recommendations were referred to the respective Commissions for their consideration and implementation.

A second major contribution of this Association since World War II was its forthright and statesmanlike handling of the problem of accreditation of the Chicago public high schools. The actions of our Association in this regard represent a new high in educational leadership and did more to resolve a most difficult problem than we could have foreseen at the time or could have been accomplished by any other existing agency. It is gratifying that under its present able and recognized leadership the Chicago public high schools are this year in a position to merit unqualified approval of our Association.

Again, your Association has formally recognized the educational needs of the Dependents Schools in Germany and Austria and has provided ways and means whereby the educational programs in these schools may be evaluated and accredited. Not only have these schools supplied to the Commission on Secondary Schools the necessary reports but the schools have also been visited by persons from this territory who have chanced to be in the occupied zones. Thus the youth who are the sons and daughters of our occupying forces have been enabled to receive the kind of instruction creditable for transfer to the secondary schools of our territory. Reciprocally, it is fully expected that the other regional associations will accept credit thus earned or applicable to the satis-

fying of graduation requirements and the admissions requirements of our universities and colleges. It is anticipated that our schools in Japan will similarly receive recognition if and when reports are filed and found to be satisfactory.

The Executive Committee has given its endorsement to the continuance of the activities of the directing committee for the Cooperative Study of Secondary School Standards and has approved an expenditure of money during a two-year period whereby further revisions of these standards may be found desirable and expedient. The direction of this project is made possible by a committee representing all parts of the United States, our own Association being represented by the appointment of five persons from within the territory of the North Central Association, these persons having been nominated by the Commission on Secondary Schools and approved by your Executive Committee. It goes without saying that this project has been of great value to our Association in recent years. The Evaluative Criteria so developed have been most stimulating. They have furnished a basis upon which the Commission on Secondary Schools of our Association has been able to revise its own criteria for a more effective means of stimulating our member schools to improve their own educational programs and for developing qualitative criteria for evaluation and accrediting purposes that will enable the Association through the Commission on Secondary Schools to view the claims of member schools for such accreditation on the basis of an institutional pattern rather than upon the basis of meeting certain specific criteria and regulations, many of which have been far too quantitative to be of real value. We are not unmindful of the contributions of the Commission on

Colleges and Universities which for a number of years has been operating under provisions for accreditation which recognize this principle.

The Association expressed itself on this very significant development. The ever-increasing necessity for the continued study of all problems relating to more effective educational programs has been the concern of the Commission on Research and Service. This Commission has devoted itself to the continuous development and production of sound educational materials of instruction such as the many so-called "Units" and other instructional materials. These have been published and distributed in very considerable quantities throughout the territory of the Association at very nominal costs. They have been extensively distributed outside of the North Central area and even outside Continental United States. Income to the Association from the sale of these has been most satisfying. Still another area of study has been that of teacher education. Of real significance has been the work of the special committee charged with directing studies of teacher education in liberal arts colleges. So effective has been that activity that it is now being proposed that a similar study be projected in the teachers colleges. It should be said in passing that the participating colleges have been willing very largely, if not altogether, to subsidize their activity. This committee is also concerning itself with two other problems: teacher personnel and in-service training. Our meetings this year included reports and conferences on these two matters.

A Committee on Current Educational Problems is at present devoting much time and effort to two projects, one on audio-visual education and the other on guidance. Both of these have been a matter of consideration and

reporting in the sessions of the Commission on Research and Service.

It is the desire of your Executive Committee that the Association take its program out to the member schools. To this end it is proposed that regional conferences be set up in various parts of the North Central territory. Such conferences have already been held and more are being planned.

No particular mention has been made of the activities under the care of the Commission on Colleges and Universities. Suffice it to say that that Commission is doing yeoman service in improving its own criteria for accreditation and in modifying its many norms in terms of their more effective procedures. The Board of Review has been most active and this year has set a new record in terms of the number of higher institutions surveyed and considered for accreditation. Its activities in this regard will continue to tax its resources of leadership for some considerable time.

All of these activities have necessitated the expenditure of not only the personal and human resources but the expenditure of much money as well. The operating budget of the Association and of the Commissions has been very greatly augmented. One year ago this Association through its Executive Committee increased its membership fees 50 percent. The response of the member schools has been universally favorable. In 1945 our budget totalled slightly less than \$33,000. In 1946, it was \$37,350. In 1947 your Executive Committee approved a budget of \$48,970. You will be asked to approve a recommendation from the Commission on Secondary Schools to increase further the membership fees of secondary schools in order that that Commission may have the necessary funds to implement its newly proposed standards and criteria. With all of this

increase your Executive Committee is very mindful of the obligation to preserve in its treasury a nest egg of reserve funds to carry us through any period of emergency which may arise. The Treasurer's report for the current fiscal year is sufficient evidence of the sincerity of your officers to do just that thing.

All in all, the North Central Association of Colleges and Secondary Schools is making progress. It is becoming more effective and more efficient. It is stronger today than it has been in the past. It is realistic in its approach to the study of its problems and to the advancement of its objectives. In that degree it is contributing to the development of a sound, sane, and forward-looking program in all of its member schools.

GEORGE W. ROSENLOF, *Secretary*

REVISED PROCEDURE RELATIVE TO THE APPROVAL OF PROGRAMS INCLUDING WORK LEADING TO THE MASTER'S OR DOCTOR'S DEGREE

On the recommendation of the Board of Review of the Commission on Colleges and Universities, the Executive Committee of the North Central Association of Colleges and Secondary Schools at its meeting on June 26, 1948 adopted the following statement of procedure relative to the approval of programs including work leading to the Master's or Doctor's degree:

1. A college or university accredited by the North Central Association which desires to extend its program to include the offering of graduate work leading to the Master's degree shall so notify the Secretary of the Commission on Colleges and Universities, and shall submit current reports in the areas of faculty, library, and finance, on forms to be furnished by the Secretary of the Commission. With these reports the institution shall submit evidence concerning the need for the contemplated extension of its program, a definition of the areas in which, in the light of this need, it plans to offer graduate work, and a state-

ment of the resources to be made available for the operation of the contemplated program.

2. The pattern of institutional quality, as indicated by the information made available by the reports in the areas of faculty, library, and finance, shall provide the basis for a decision by the Board of Review of the Commission on Colleges and Universities as to whether the undergraduate program and the resources of the institution appear to be such as to enable it to maintain the quality of its educational program with the addition of the proposed graduate program.

3. If, on the basis of the information provided by the current reports in the areas of faculty, library, and finance, the pattern of institutional quality does not appear to be such as to justify the extension of the program to include the offering of graduate work, the Board of Review may refuse to consider further the matter of approving such extension.

4. If, in the opinion of the Board of Review, the pattern of institutional quality appears to be such as to warrant the extension of the program to include the offering of graduate work, the institution will be so notified. In such cases a period of approximately one academic year, or two summers in the case of institutions planning to offer the graduate program only during the summer term, during which the contemplated graduate program may be put into actual operation, will be allowed before any further steps to appraise the program will be taken by the North Central Association. During this period no change will be made in the accredited status of the institution by reason of the extension of its program. Only the undergraduate program will be considered as accredited and the name of the institution will be carried on the official list of accredited colleges and universities with no indication that it offers graduate work leading to the Master's degree. A committee will be appointed to visit the institution near the end of the trial period, to appraise the adequacy of the graduate program and to report to the Board of Review. If, on the basis of such report, the graduate program appears to be adequate and the quality of the institution's educational program as a whole appears to be maintained, immediate approval will be given. If the graduate program does not appear to be adequate, the Board of Review may extend the trial period and appoint a committee to visit the institution near the end of the extended period, or it may refuse to consider further the matter of approving an extension of the institution's program to include the offering of graduate work.

5. When approval of the institutional program including the offering of graduate work leading to the Master's degree, is given that fact will be indicated on the official list of accredited colleges and universities by the insertion of a notation to

the effect that the institution offers graduate work leading to the Master's degree.

6. Procedures similar to those followed in connection with the Master's programs will be followed in the case of an institution extending its program to include work leading to the doctorate.

This statement of procedure supercedes the statement of policy regarding graduate work adopted in 1937 (*North Central Association Quarterly*, July, 1937, p. 65) and the criteria established in 1938 regarding graduate work (*North Central Association Quarterly*, July, 1938, p. 67).

NORMAN BURNS, *Secretary*
Commission on Colleges and Universities.

FREE REPRINTS

The following reprints are available, free of charge, through the office of G. W. Rosenlof, Executive Secretary of the Association, 103 Administration Hall, University of Nebraska, Lincoln 8, Nebraska:

1. Attacking Reading Problems in Secondary Schools.
2. A Second Attack on Reading Problems in Secondary Schools.
3. Developing the Health Education Program.
4. The Fundamentals of Mathematics.
5. What Schools and Colleges Can Learn from Education in the Armed Forces.

MEMBERS ADDED TO CERTAIN SUBCOMMITTEES ON RESEARCH AND SERVICE

T. H. Broad, Secretary of the Commission on Research and Service, reports the following additions to certain subcommittees of the Commission:

Subcommittee on Social Studies

Lyman S. Fort, Superintendent of Schools, Sioux Falls, South Dakota.

J. E. Stonecipher, Director of Senior High Schools, Des Moines, Iowa.

*Subcommittee on In-Service
Training of Teachers*

R. S. Cartwright, Principal, Elgin High School, Elgin, Illinois.

N. B. Salsbury, Instructor, Evanston Township High School, Evanston, Illinois.

Minard Stout, Principal, University of Minnesota High School, Minneapolis, Minnesota.

The complete roster of the Com-

mission on Research and Service appears on pages 12-14 of the July, 1948, issue of the QUARTERLY.

HARTWELL HIGH SCHOOL, CINCINNATI,
DISCONTINUED

On June 14, 1948, the Cincinnati Board of Education officially declared Hartwell High School closed and transferred the students of that institution to Hughes High School. This information reached the QUARTERLY over the signature of Winton L. Moeller, Principal of the Hartwell School.

HIGHER EDUCATION¹

GEORGE F. ZOOK

American Council on Education

To the student of social progress, the growth of higher education in the United States is one of the most fascinating stories in the history of American democracy. It begins with that charming story of John Harvard, the founder of Harvard College, who, when questioned by the British Monarch as to what he had been doing in the New World, was reported to have said, "I have planted an acorn, which when it grows into a sturdy oak, God alone knows what the fruit thereof will be." Similarly, other institutions, Yale, William and Mary, King's College (now Columbia University), Princeton, Dartmouth, and Brown University were established largely for the purpose of preparing men for the ministry but who also supplied a large portion of the intellectual leadership in those early days.

Then came in quick succession, the state universities, the normal schools, the separate colleges for women, the land-grant colleges and junior colleges. Often established separately were professional colleges of medicine, dentistry, pharmacy, law and engineering, most of which have now been drawn into universities, both public and private. Among the more recent developments has been the all but universal tendency on the part of the normal schools to develop into teachers colleges and even into institutions for general liberal education. In most universities, both public and private,

teacher education has become a major division. At the apex of it all is our system of graduate education found, for the most part, in our large universities.

Accompanying and producing this rapidly increasing diversity of offerings in the field of higher education has been the pressure of students on the one hand and the tremendous expansion of knowledge in all areas of learning, the sciences, the social studies and the humanities. Certainly it would be true to say that the world never before has witnessed such an unparalleled expansion of knowledge, student enrollment, curricula, and physical facilities which has characterized the past two generations. So great and so swift indeed have been the changes in higher education, during these recent decades, as to lead easily and quickly to the conclusion that few people, if any, have possessed or do now possess either the time or the competence to evaluate what has happened on the basis of which to offer guidance for the future.

Yet, I presume that this is exactly the task which the Commission on Higher Education, appointed by President Truman, undertook in the summer of 1946 and which it only recently completed by issuing a report in five small volumes, any one of which can be read in an evening. It may be a bit presumptuous on my part, since I was a member, and Chairman, of the Commission, to suggest that the report be read not only by the executives of the colleges but also by the faculty, students and even the general public. But certainly, the Commission had in mind that it was addressing itself to one of the fundamental problems of

¹ Delivered at the centennial celebration of Girard College, Philadelphia, and printed here because of the general interest which an analysis of higher education should meet at the present time. Dr. Zook formerly was quite prominent in North Central affairs. Since 1934 he has been president of the American Council on Education.

present day American social life which, like other such problems, cannot be solved without widespread public knowledge and opinion.

The President's Commission on Higher Education attempted first of all to seek out and to identify the amount and character of education beyond high school graduation which is necessary to preserve, strengthen and safeguard American democracy, both at home and as the leading member of the family of nations. I need not tell you that this was no easy task, even in specific areas of professional demand. Examples: *Medicine*.

"According to the Federal Security Agency," so states the report, "merely on the basis of current demand, the deficit of physicians and surgeons will be at least 26,000 in 1960, and if actual and urgent need for better services, such as for general practitioners in local communities, is included, then (the) shortage is increased by an additional 30,000."

Dentistry

"To meet the estimated need," according to the Bureau of Labor Statistics, "more than 48,000 dentists will have to be graduated between 1950 and 1960." Present facilities are capable of preparing not more than about 60% of the required number.

Nurses

According to the U. S. Women's Bureau, there was "in spite of Federal subsidy for the training of nurses during the war" a national deficit of nurses in 1947 of 41,700. "Even if the number of graduates in nursing," the report goes on to say, "could be held to the wartime peak of 45,000 a year"—and it is now again far below that figure—"there would still be a serious shortage of nurses in 1960. Active recruitment of students in this field is urgently necessary."

Teaching

But "by far the largest and most urgent demand for new personnel is in elementary and high school teaching. According to the U. S. Bureau of Labor Statistics, we must recruit and train nearly 1,000,000 new teachers during the ten years from 1950 to 1960. In sheer size alone, this is a serious and challenging responsibility."

Only in engineering does there seem to be any early likelihood of supply equalling demand. The enrollment in engineering colleges far exceeds expectations and "indicates," so the Commission believes, "that the supply of engineering graduates, may exceed available engineering positions by June 1950 or perhaps 1949, and that if enrollments continue at their present level, this condition might continue in later years."

But, I wish to say to you, that while the Commission was seriously concerned about the shortages in trained manpower at the higher levels in technology and in the professions, it had faith that the economic rewards which now exist or must presently be made available, including the field of teaching, will inevitably attract the required number of students and produce the necessary facilities to provide an adequate supply of trained man power to meet the nation's technical and professional needs. No, it was not with respect to these matters that the Commission had grave fears.

Rather it was the question as to whether a sufficient proportion of the people of this country now possess general education of such a quality as to insure the preservation and continued development of the democratic way of life to which our nation is dedicated. We have been told times without number, from the founding fathers on down to the present hour, that there can be no democracy without widespread education. But the most pro-

found truths have a way of losing their force through popular neglect and by reliance on purely mechanical and routine methods. Even in education we easily fall into the habit of emphasizing facts without motivation. We split up our knowledge of the world and of ourselves into small segments without any serious attempt to see it as a whole. We teach without putting our instruction into the setting of a dominating philosophy or even of insisting that each student develop and follow a life philosophy. In other words, if education is to have meaning and worth, it must result in behavior on the part of the individual which is good for himself and for society as a whole.

I do not suppose that life has ever seemed simple for the individual. Even Robinson Crusoe didn't find it so. Certainly, history teaches us that in the decades gone by in this country, there have been times without number that have tried men's souls. To them, their problems could not have been more complex. Yet, with all due respect to our revered forefathers, living successfully in the modern world demands far more from the average individual citizen than at any time in our history. How to grasp and interpret the significance of scientific discoveries which follow one another in rapid succession; how to divide up the income from labor and capital among ourselves; how to spend our increasing surplus income, on ephemeral pleasures or enduring satisfactions; how to treat others who belong to different races or religions; how to run the affairs of the country and the state; how to live together with other nations in peace and harmony, are all the common problems—not of just a few people in the community—but of the great bulk of our adult population. Faced with these responsibilities, either a greater proportion of our population than at present will be intelligent about and zeal-

ous for the common good, and so Democracy will succeed, or this nation will fail to meet more than a portion of its responsibilities, both at home and abroad. The time has gone by when government, or industrial direction, or agricultural leadership, or indeed leadership in any part of the whole wide range of social affairs can be reserved for the well-born or the well-to-do. In a democracy, these matters are the common responsibility of all citizens.

But there has always been an assumption which has, I fear, been supported by many educators as well as others that not any large portion of the babies born into this world are endowed by a kindly Providence with the brains to assume any large portion of the responsibilities about which I have been talking. Is it not futile, therefore, to hope for any considerable extension of or improvement in the further education of the great mass of our population? Have we not already done about as much as can reasonably be expected and far more than in most countries of the world?

It is true, that some people do have greater ability and therefore greater social responsibility than others. But it is equally true that we have not yet availed ourselves of the opportunity to educate more than a small proportion of the latest brain-power available in our population. In other words, a substantial part of it is going to waste.

Before World War II, about one out of seven or eight young people, between the ages of eighteen and twenty-two, were enrolled in college. A recent study in New York State, so I understand, showed that a large proportion of the young people in the highest one-fourth of the high school graduating classes did not attend college. Where were the others and why wasn't the state and the nation getting the benefits which might accrue from their continued education? Even more impor-

tant were the results of the Army general classification tests taken by more than ten million young men and women during the recent war which showed that nearly 50 percent of our youth population is capable of profiting from two years of college education along present lines and thirty-five percent might reasonably be expected to complete the work for a bachelor's degree. Obviously, the percentage would be higher if education beyond the high school was more diversified and better adapted to social and individual needs.

We do not need, therefore, in the face of national needs for better education for more people beyond the high school, to adopt a counsel of despair. There is plenty undeveloped talent in our population to improve our democracy and make it more equal to the necessities of our time, *if only* we have the vision and courage to plan for it, to invest in it and to carry it through.

But to do so will call for the adoption of a program that looks staggering in scope and in size. Before World War II, there were about 1,250,000 young people enrolled in college. Today, only ten years later, largely due to the benefits of the G. I. Bill of Rights, there are nearly twice as many students crowded into the classrooms and laboratories of American colleges and universities. In the face of this embarrassing situation, the President's Commission comes forth with the bold declaration that within the next twelve years, that is by 1960, the present huge enrollment should again be nearly doubled to the total of 4,600,000.

What are the steps which should be taken to accomplish this tremendous expansion in the college population? Well, in the first place, the Commission envisions a widespread system of community colleges in each state in the union offering two years of work beyond the present high school with free tuition.

Before one can fully appreciate the feasibility and the necessity of this recommendation, it is very well to keep in mind that the all but universal opportunity which young people now have to attend high school is a very recent development. The common school, when I was a lad, was the elementary school. Now a very large proportion of our youngsters also attend the secondary school in the community in which they live, and so the common school has come to include also the secondary school.

Today, we are already in the process of experiencing the same development with the community college. In such states as California, Kansas, Iowa, Texas, Georgia, Mississippi, Minnesota and Michigan, public junior colleges have been established in many parts of the state. Two years ago, a survey commission in Illinois recommended the establishment of a state-wide system of junior colleges. Obviously, something of this sort is needed there as well as perhaps in Pennsylvania, because at the University of Illinois and also at the Pennsylvania State College, it has been necessary to park large numbers of freshmen in other colleges and in make-shift college centers. In New York, a State Commission, headed by Owen D. Young, after an extensive study of the situation, issued a report only three months ago recommending a state-wide system of community colleges. It seems clear to me that we are nearer to this solution of our problem than is generally realized.

Why now the public community college? Is it because tuition fees in privately-controlled colleges, and even in our state institutions, have become so high as to be an effective barrier? Well, no, I do not think so in most cases, although it is true that college students are now paying a higher proportion of the bill (10 percent) for their

college education than ever before. Moreover, we shall not know the full effect of higher tuition fees on college enrollment until the Federal Government which is now paying the fees and other expenses of such a large proportion of students under the G. I. Bill of Rights, withdraws from the scene.

At that time, unless measures are taken to relieve the situation, we shall witness a leveling-off in college enrollments, and perhaps a temporary decline in numbers, not so much because of the item of tuition fees but primarily because national vital statistics show very clearly that a very large proportion of young men and women simply cannot afford to go to college. When tuition expenses are added to transportation and living costs for those who must live away from home to go to college, or even when it requires only the sacrifice of earning power for themselves and their families, as in the case of those who live within commuting distance of a college, it cannot be done, and of course, it isn't done, without financial assistance. A study carried on in Pennsylvania some years ago showed that a bright boy from a family with high income had a 4 to 1 greater probability of going to college over an equally bright boy who had the misfortune to be born into a low-income family.

With the general increase in population, and with the increase in the proportion of young people who want and ought to go to college, the establishment of community colleges has, therefore, become a natural and economical evolution of our educational system.

But there is another reason for the expansion of higher education along the lines I have suggested. You will recall that I have used the term, community college, instead of junior college. The President's Commission on Higher Education had in mind not merely making at least two more years

of education easily available to the great mass of our population, but also of expanding and diversifying the character of it. For example, it is now much more clear than it used to be that in a large proportion of instances young people, while they are in high school, are simply not old enough to select and prepare themselves for the various vocations into which they will ultimately go. There is, therefore, a great need in addition to liberal arts curricula now offered by junior colleges for two-year courses of study in industrial and commercial pursuits, secretarial science, home economics, agriculture, and a whole host of semi-professional jobs for young people of seventeen to nineteen years of age when they are mature enough to be thinking seriously as to what they will do to earn a living.

Equally important is the fact that these community colleges, as well as the four-year colleges, both public and private, should become centers of adult education and culture. In this day and age, we can no longer assume that everything can be learned in school or even from the newspapers and the radio. With the increase of scientific inventions, the character of jobs changes rapidly in the lifetime of any one individual. Their implications for our social life change rapidly. Adults, therefore, need to continue their education, and occasionally to retrain themselves for new jobs. To see the windows of college buildings ablaze at night and to see throngs of mature men and women passing from one classroom to another seeking to improve themselves and their community is a sight that always gives me a thrill, and one which I trust through community colleges and all urban universities may become a common experience here in America.

Now, up to this time, I have not attempted to answer some of the questions which I know must be popping into your minds. The chief one, doubt-

less, is how are we going to finance so great an expansion of higher education, especially when it will require at least the doubling of present buildings and equipment, costing several billions of dollars, and, if the recommendation of the President's Commission is followed, the elimination of all student fees for freshmen and sophomores in state institutions and public community colleges, and even the reduction of fees in privately-controlled colleges to the pre-war level?

Well, the answer of the Commission is that while the expenses of higher education have greatly increased, they have not increased nearly as rapidly as the national income, with the result that at the present time we are actually expending for higher education in all types of institutions a smaller proportion of our national income than before the war; namely, a fraction of one percent. In 1932, .65 of 1 percent of our national income was spent for higher education; in 1942, .46 of 1 percent. If the recommendations of the President's Commission are carried out, 1.19 percent of our national income will be spent for higher education. Please do not be too much worried about the expense, therefore. We can afford the bill all right, provided only that we do not have to expend all of our available resources on preparation for another war.

But how, you ask, is the money to be raised? The answer, according to the Commission, is as it has been hitherto; namely, from private gifts and endowments, from the states, and from the communities according to their ability to pay, and to a larger extent, from the Federal Government. At once many of you will be moved to say, "Yes, one more instance of running to the Federal Government to support functions which, under our Constitution, were reserved to the states and localities to administer, and

presumably to support." One who holds this theory has much to support his conviction, but he forgets two important facts: First, that all education, including advanced technical and professional education, is as vital to the preservation and safety of our national welfare as it is to local and state affairs. We have just witnessed, for example, in the recent war the extent to which our higher educational institutions may be taken over and administered for our national defense.

Secondly, he forgets that in 1913, an amendment to our Constitution was adopted, the implications of which we are only gradually coming to realize; namely, the amendment conferring upon the Federal Government the authority to levy and collect income taxes. To be sure, that amendment did not take away the power of the states also to levy income taxes, but the practical results have been much the same. Only about two-thirds of the states levy income taxes at all, and in the others only a small fraction of the amount of taxes is secured from this source as compared to the amount that pours into the Federal Treasury.

It is no accident, therefore, that contemporaneously with the passage of the 16th Amendment the Federal Government has been requested—and has acceded to demands—to hand back a portion of the proceeds of Federal revenues to support functions essentially of a state and local nature; namely, roads, health, social security, and education. Far from decrying this tendency, therefore, it must be accepted, provided in education it is not accompanied by Federal control, because it is certain that the Federal income tax amendment is not going to be repealed and because the process of handing back a portion of Federal revenues to the states according to their needs rather than in the proportion that they are able to pay, presents

the one and only means we have to equalize educational opportunities among the states which, as everyone knows, vary so greatly in per capita wealth and income and, therefore, in their ability to support education and other public welfare programs. Federal aid to education, including higher education, is therefore both right and inevitable, and the sooner we can convince a stubborn Congress of the righteousness of this cause, the sooner we can plan for that expansion and improvement of all levels of education to which this country is entitled.

There is yet another question which must be bothering many of you in this audience. That is, what about the future of the privately-controlled colleges and universities if the Federal Government makes its funds available only for the support of publicly-controlled institutions, including a host of community colleges? Did the privately-controlled colleges not pioneer in almost every state in the Union? Do they not continue to serve equally the public interest without expense to the taxpayers? Is their plight not bad enough because of reduced income on endowments and reduced purchasing power of the fewer dollars they receive from this source without subjecting them to increased competition from those which are supported from public funds? Students pay 10 percent more than ever before.

Objections along these lines are indeed cropping up in many places from those who are properly concerned about the future of privately-controlled colleges would retain the present huge enrollment which far exceeds the pre-war figure and far outstrips generally their facilities. Moreover, the Commission recommended a national system of scholarships and fellowships available to approximately 20 percent of the student population varying in amount from a maximum of \$800 per

year for undergraduates to \$1,500 per year for graduate students which are to be available for use in privately-controlled colleges and universities as well as in publicly-controlled institutions. If such a system is adopted, it will go a long way toward making it possible for young people from families with low income to go to college. Equally important, it will insure enrollments up to their capacity in all of the privately-controlled colleges.

But I would not have you assume that I believe the privately-controlled colleges have no problems of financial support. They do. But the solution lies in their constituencies, particularly their alumni. Many a distracted college president spends a large portion of his time chasing down dollars, wherever they are suspected of being in hiding. But the matter of private support for colleges has now become a business just as community chests are a business, demanding planning, organization, and cooperation. In this respect, it seems to me that the United Negro College Fund for the support of Negroes has set an example which may very well be emulated by older and better established institutions for the white race.

In this address, I have been able to speak briefly about only a few of the factors and implications in the expansion of higher education to meet national needs in the professions and in the general education of a greater proportion of American citizens. It is a bold program, challenging judgment and courage. I trust, however, that those of us who belong to the older generation may not be lacking in either vision or courage, and that we may be able to disprove that ancient pronouncement in the Bible made by one of Job's bearded friends when he asserted that "only to young men is it given to see the light which is in the clouds."

THE EXPANDING ROLE OF RESEARCH IN EDUCATION, FROM THE POINT OF VIEW OF THE UNIVERSITY PRESIDENT*

DAVID D. HENRY

Wayne University

EVERYONE in America today has a stake in the progress of scientific investigation. The research worker has a direct concern, but the consumer of the end-product is also a shareholder. The American people in general accept this premise, I believe. The advertiser believes it, too, for by radio or printed "ad," he is quick to claim the evidence of research as a clinching argument for the acceptance of his product.

The source of the present popular acceptance of the importance of research is not hard to trace. Americans generally are convinced that the recent war was won, first, because of the magnificent fighting qualities of the allied soldier; second, because of our superior resources of oil and other raw materials; third, because of our superiority in industrial production; and fourth, because of our superiority in directing our research agencies toward the problems of war.

Before the war, the phrase "age of technology" had come into common usage. The technical developments made during and after World War I, the startling results of scientific discovery and invention in the twenties and thirties, and the miraculous results of new industrial processes combined to create a popular appreciation of the importance of science and technology in modern society.

Now, World War II dramatically has given new emphasis to the place

of science in human affairs. Even before the revelation of the atomic bomb, the opinion of those best qualified to speak judged that we had made, in the period of the war, scientific and technological progress that would not have been achieved in a fifty-year span of normal activity. Such compression of scientific achievement in all fields, from engineering to medicine, both amazed and startled us. Radar, plastics, synthetics, streamlined engineering, robots, penicillin, and a host of other technical achievements came with such rapidity that we no longer felt surprised when a new "secret weapon" or process was announced. The revelation of the atomic bomb climaxed all the other scientific achievements of the war and suddenly gave definitive meaning to our former, rather unanalyzed premise that the modern world is the world of science and technology.

One encounters ready familiarity with many of the most striking scientific developments of wartime research. To list only a few of them:

Radar, which gave us eyes to see through fog, smoke, or night.

The miracle drug, *penicillin*, which was so powerful and specific against infection that it saved the lives of thousands.

The increased knowledge of how and when to use *whole blood and blood plasma*, which dramatically lowered the death rate due to war wounds.

The rapid advance in *airplane design*, in the development of new and more powerful *propulsion machinery, like the jet engine*.

The radical change in armament of airplanes and naval vessels, bringing rockets and remote control systems of fire control.

The perfection of the *proximity fuse*, which so

* One of three papers read before the Commission on Research and Service which dealt with the theme, "The Expanding Rôle of Research in Education." The others will appear in subsequent issues of the QUARTERLY.

increased the effectiveness of anti-aircraft fire.

The development of *synthetic fibers* like nylon, and of synthetic rubber, providing substitutes for natural products whose sources were lost to us by enemy action.

The production of many new *plastics*, with so many desirable qualities, ease of moulding, low coefficient of expansion, improved insulation, and resistance to corrosion.

The development of the *atomic bomb*, the demonstration of whose terrible destructiveness is widely credited with ending the war.

This list is but a fraction of the number of products of wartime research which might be included in such enumeration.

Appreciation of the narrow margin by which the scales of war were tipped in our favor and knowledge of the role of research in providing this margin have disposed the American public to look hopefully to the research laboratory for further advance.

This popular faith in the future of science is an important premise in a consideration of the expanding role of research in education, for it creates the climate favorable to the development of those resources and opportunities which in large part determine the time table of progress. The appropriation of public funds, the use of private funds, the motivation of personnel, as related to recruitment and dedication, the direction of institutional activity—all essential parts of research progress—are elements in that climate.

Further, our sense of urgency as we prepare for future research progress is sharpened by our knowledge of the terrific cost of the war in ways beyond human count. In many ways, we are expected to make up for the losses inflicted in other parts of the world. Dr. James B. Conant, the scientist-president of Harvard University, said recently, "The great flame of war which has seared all of Europe places heavy responsibilities in our hands. A large share of the future of the scholarly activities of the world must be carried

on in the next decade on this continent."¹

Dr. Raymond B. Fosdick, President of the Rockefeller Foundation, describes feelingly the "isolation of silence" which descended upon Europe. In his Review of the Foundation's activities for 1946, he says:

It is difficult to assess what has been lost in these years of silence and intellectual darkness. The humanists of France, whose leadership gave Western Europe its cultural prestige, were driven underground, cut off from each other and from the rest of the world. The great Swiss groups in organic chemistry carried on their activities behind impenetrable walls. We cannot know what was in the tortured minds of the Polish mathematicians. Still less do we know the thoughts of the great topologists and analysts of the Russian mathematical school. Of the Hungarian biologists we have little information—either as to what they did or are now doing. Biochemistry and physiology were able to maintain some degree of momentum here in the United States, but they lacked the stimulation which previously had come from the brilliant group of biochemists and physiologists of Denmark and Sweden. Mathematics and geophysics are well developed in Finland, but the voices of their scientists were not audible to the rest of the world. Equally silent were the laboratories in Paris and Oslo and Utrecht and Prague. From Germany, where, as we are just now learning, a few scientists were able to continue their work in pure research, little has been heard.

I have developed this general setting for research in America today, because the expanding role of research in education can be appraised accurately only when it is related to the larger pattern of which it is a part.

The Place of the University in Research

The research agencies in America to whom "the expanding role" is entrusted fall roughly into three groups.

There are the research organizations which are associated with industry.

¹ James B. Conant, "The Advancement of Learning in the U. S. in the Post-War World," *Proceedings of the American Philosophical Society*, Vol. 87, No. 4, (January 29, 1944), p. 297.

These vary in complexity from small groups of consulting scientists to the great laboratories of large corporations. Of course, a great deal of the work conducted in the industrial laboratory is, and probably will continue to be, concerned chiefly with practical applications of research. There are exceptions to this, it is true. Dr. Irving Langmuir's investigations into the characteristics of oil films were carried out in the General Electric Research Laboratories in Schenectady. And industry's concern with fundamental research is growing. Nevertheless, in the broad view of industrial research, the emphasis for some time to come will be upon "development" and application.

A second classification of research agencies includes those which are operated within government agencies. We may include here organizations of long standing, such as the Coast and Geodetic Survey, the Naval Observatory, The Geological Survey, and the regional laboratories of the Department of Agriculture. By 1939 more than forty scientific agencies had been established under the Federal Government. Dr. Vannevar Bush, Director of the Office of Scientific Research and Development, says, "Almost all Government scientific work has ultimate practical objectives but, in many fields of broad national concern, it commonly involves long-term investigation of a fundamental nature."² But he also points out, "Government scientific agencies have splendid records of achievement, but they are limited in function."³

By far the largest group of organizations in which scientific investigation is carried on in America, in numbers,

if not in financial support, are the universities. Here are research facilities—the laboratories, the scientific libraries. Here also are men and women who are capable of doing research—the faculty members and graduate students. Of equal importance with the presence of physical equipment and of trained scientists is an atmosphere of freedom for the research worker. Without this last condition, intangible though it is, the search for new knowledge holds limited promise, for fundamental research requires a freedom of inquiry that recognizes no limitation or boundary. Truth must be sought wherever it may be found.

The achievements of American universities in research, it must be admitted, have been very uneven. Some institutions have achieved striking success, and their fame has gone to all corners of the earth. To avoid invidious comparisons, I shall mention only a few examples without attempting to set one university's work above that of another. Princeton's School for Advanced Study is known for its work in mathematics; Massachusetts Institute of Technology is famous for research in the field of electronics; the contributions of Columbia University to organic chemistry are widely recognized; Johns Hopkins University is outstanding in the field of medical research.

But the amount and the quality of research done in collegiate institutions has not all been up to the highest standards. For every piece of top grade scientific investigation there has been a great deal of "busy" work, of the pursuit of meaningless minutiae, of the calculation of results to the third decimal place from data that were not accurate to one decimal point. This knowledge of our shortcomings, however, should not lessen our appreciation of the role which the university can and must assume.

² Vannevar Bush, *Science—The Endless Frontier, A Report to the President*, Washington, D. C.: U. S. Government Printing Office, 1945, p. 6.

³ *Loc. cit.*

The University as a Training Center

Keystone of the research program of the future, of course, is the supply of trained, competent research workers. Here the university has a function as important as the conduct of the research itself which is undertaken. The demand is great, equally in universities, government, and industry and business; and the training burden falls upon the universities. Technicians and assistants can be trained "on-the-job" in large numbers, but the competent worker in basic research usually must come from the university.

Industry has recognized this point, and there are increasing examples of efforts to stimulate the increase of the supply of research personnel.

As long ago as 1922, the E. I. DuPont de Nemours Company offered to establish in the departments of chemistry of selected universities fellowships in chemistry. These were open to graduate students, and no restrictions were set up as to the nature of the research work to be done or how the fellows were to be selected. Neither was the student's future choice of a position made a condition. The one purpose of the fellowships was to help in increasing the number and quality of graduate students in chemistry. The company felt and frankly stated that the ultimate increase in well-trained chemical workers would be ample return on its investment.⁴

Many other examples of the same approach to the problem could be given.

Confidence in the universities as the principal source of research personnel

is dramatically illustrated by the support accorded the bills introduced in Congress to establish a National Science Foundation. Although the particular bill which was passed by Congress and sent to the President in January, 1947, was vetoed by him, his opposition was directed toward the form of administrative organization which it proposed to establish. President Truman joined majorities in both houses and among the American people in expressing approval of the purpose of the bill.

In November, 1944, President Roosevelt asked Dr. Vannevar Bush, Director of the Office of Scientific Research and Development, to prepare a report on a recommended research program for the nation. Dr. Bush's report, *Science, the Endless Frontier*,⁵ took seven months to prepare and presented the best thought of fifty of the nation's most outstanding men in the fields of science and education. It provided the basis for the bills for the establishment of the Foundation.

The report stated and the bill provided that the Foundation "should develop and promote a national policy for scientific research and scientific education, should support basic research in non-profit organizations, should develop scientific talent in American youth by means of scholarships and fellowships, and should by contract and otherwise support long-range research on military matters."

In hearings conducted before subcommittees of the House and the Senate, the opinion was repeatedly expressed that the universities were looked to for the carrying on of the desired program of research and of increasing the supply of competent research workers.

⁴ See Hugh S. Taylor, "The Organization, Direction, and Support of Research in the Physical Sciences," *Proceedings of the American Philosophical Society*, Vol. 87, No. 4 (January 29, 1944), p. 300.

⁵ Vannevar Bush, *op. cit.*, p. 28.

Organization and Administration of University Research

For the university to be a training center for research personnel, its training laboratory must be its own research work. The two are inter-related. Thus, the university has the obligation to take a "new look" at the organization of its research, as well as its comprehensiveness and vitality.

The research activities of American universities may be classified in several categories.

The simplest form of these is, of course, the research work of the individual professor as it relates to his own instruction or to his own field of specialization. The professor who is a good teacher is concerned with passing on to his students the best learning of the past, and with the development of new ideas, the discovery of truth and the growth of attitudes which encourage the extension of knowledge.

Out of the laboratory of the teacher researcher have come so many results of fundamental research in this and other countries that I need not labor the point. Banting's discovery of insulin, Faraday's work on electromagnetism, Fleming's discovery of penicillin's destructive action on bacteria—the list could be extended to great lengths. Behind many of the great scientific achievements of our own time lies a long history of devotion to research on the part of university-connected men and women.

Many programs of research in collegiate institutions involve several members of a department, and some of the more elaborate undertakings cut across departmental lines. At Wayne University a study of *The Air Cargo Potential in Fresh Produce* was carried out under the direction of Dr. Spencer A. Larsen in the Department of Business Administration.⁶ His associates

in this study were staff members from the Departments of Economics, English and Home Economics, the College of Education, and the School of General Studies.

Some universities are developing separate institutes for research, in order to take advantage of their multiple resources. An outstanding example of an organization of this kind is the Armour Research Foundation of the Illinois Institute of Technology.

A natural extension of the "team-work" approach to research is inter-institutional cooperation, a development given great impetus by the war. Massachusetts Institute of Technology, for example, became a center for research in radar. A great deal of the rapid advance in the use of high and ultra-high frequencies was done in the laboratories of MIT. Research men were drawn from many American and British universities. The superiority of our radar equipment and the effectiveness of our counter-measures against enemy radar came as a result of cooperative effort that cut across institutional lines.

The most recent example of inter-institutional cooperation in research on a large scale is the Brookhaven National Laboratory being established on the site once occupied by Camp Upton on Long Island, New York. Research here is concerned with the discovery and development of peaceful uses of atomic energy, financed by the United States Atomic Energy Commission. But Brookhaven will be operated by a separate organization called Associated Universities, Incorporated, with a

a. Spencer A. Larsen, *Air Cargo Potential in Fresh Fruits and Vegetables* (Detroit: Wayne University Press, 1944).

b. N. Stanley Oates, ed., *Outlook for Air Cargo in Fresh Produce* (Detroit: Wayne University Press, 1944).

c. Spencer A. Larsen and William Reitz, *Air Cargo Potential in Drugs and Pharmaceuticals* (Detroit: Wayne University Press, 1946).

⁶ For detailed accounts of the studies carried on at Wayne University on Air Cargo Research, see:

membership of nine eastern universities.

The director is Dr. Philip Morse of the Massachusetts Institute of Technology. The laboratory will eventually employ a permanent staff of two hundred. In addition, there will be a visiting staff of at least as many. The members of the laboratory's staff will come from the member universities and from other scientific institutions of the area. There will be specialists in physics, plant and animal biology, medical research, genetics, geology, meteorology, and biochemistry. The budget for the first year is twenty-five million dollars.⁷

An illustrative development of inter-university cooperation in a social science field has occurred recently in the area of industrial relations. Institutes for industrial relations research and instruction have sprung up in recent years in a number of public and private universities. The aims of these programs have been diverse, but the contiguous areas of research have been recognized. By means of meetings, interchange of materials, common planning of projects, and with the assistance of the Social Science Research Council, the research programs of the various institutions have developed a considerable degree of integration. A new learned society has been established this year to assist in this coordination: the Industrial Relations Research Association.

The coordination of the work of the various institutes is active and energetic. As an example, when the University of Chicago, acting under a grant from the Carnegie Corporation, undertook the development of materials for the effective training of leadership in trade unions, it arranged for the testing of these materials in

Detroit's labor-management arena through Wayne University's Institute of Industrial Relations.

I have mentioned a few examples of cooperative effort in research involving a number of different colleges, but it is largely true that we are as yet only beginning to feel our way in such inter-institutional programs. Many of us over a long period of time have indicated that research is one area where institutional cooperation is feasible and of great potential; but, in all honesty, we must admit that we have had too little of it. Collegiate institutions, with their natural habit of behaving like individuals, don't do this kind of thing readily. A good deal of intelligent leadership and patient analysis as to how to pool resources will be required to make this approach a widespread practice.

Then, the expanding role of the university in research should reach into the community and into non-educational organizations and enterprises. Industries, businesses, and community agencies have long come separately and individually to universities for cooperative effort in research. The next step, I think is group cooperation on a much more broadly defined organizational base.

Before the war competitive enterprises had not learned or found the desire to work together on common problems. Then, under the pressure of annihilation, we learned that pooling of resources of knowledge meant victory. You know the story of that pooling of resources; how airplane manufacturers, around the conference table, shared their ideas to build a kind of plane that never before had been built; how the automobile manufacturers exchanged ideas and information to speed production of tanks, cars, motors, and planes; how many industries learned to cooperate in the exchange of information.

Completely unlimited exchange of

⁷ This account is based on an article by Daniel Lang, "A Reporter at Large, The Long Island Atoms," *The New Yorker* (December 20, 1947), pp. 33-43.

ideas cannot prevail, of course, in a peacetime competitive system. There is always the incentive for one competitor to get a new idea first and put it on the market. This kind of incentive is a primary requisite for the competitive system, and it must always be so. However, I believe there is an area behind the competitive front where, by sharing knowledge on common problems, an industry as a whole can be moved forward in a way and with a speed that would not result from isolated developments. I think there can be achieved a balance between the exploitation of competitive ideas and the sharing of those ideas about common problems which will help an entire industry to progress with resultant benefits for the entire consumer public.

The university can and should be the inspiration for such team-work organization and program in whatever community it may be located. Thus will be built into the research structure a sharing of facilities, equipment, and manpower that will enrich the results far beyond what otherwise would have been achieved. Universities must, I think, in the nature of things, take the initiative in making the exploration into this field of cooperation.

For the university successfully to meet the expanding role that I have tried to define, it must, as I said earlier, take a "new look" at its organization and leadership in the research function. We have new obligations, as well as new opportunities.

Opportunities must be sought to aid the individual "researcher." Provision of research equipment, release of time from teaching obligations while he is engaged in research, the establishment of fellowships and scholarships by which the services of graduate assistants can be obtained—these are well-known forms by which research can be advanced. Some universities have es-

tablished research professorships—a special status in which the incumbent does little or no teaching.

University administrators must constantly be aware of the research going on in their laboratories, so that they can be ever on the alert to discover promising young research men and women. In this connection, it has been suggested, I think, unwisely, that the most promising young scientists should be discovered as early as possible and assisted throughout their careers until they become highly trained specialists. Practical experience in the research laboratory has shown that no one can peer into a crystal ball and form any dependable estimate of the quality or the extent of the research that a young scientist will achieve in the future. The best that can be done is to help a sizeable group through the first stages, then select the "cream of the crop" and push them along. Successive selections, it is hoped, will help to direct the aid to those whose originality, imaginativeness, and industry give the greatest promise of results. Nor is there need to feel that the investment in those who did not survive the earlier tests is wasted. There are opportunities and possibilities which will make use of students at every level of scientific attainment.

The university, by maintaining a continuing inventory of its own research projects, can integrate them, and then, draw upon the resources of the university to push them forward without duplication of effort. Administrators must constantly seek for new sources of aid for the research that is being done or may be undertaken. To do this, there must be a constant appraisal of the scope of the institution's work.

The university must keep an inventory of outside sources of assistance, either in the form of financial aid or the

provision of facilities for research. Funds for specific projects may be sought from the Federal Government, from foundations set up to aid research, from industries, industrial and trade associations, and from private individual donors.

The university administration must constantly fulfill its duty of leadership in seeking opportunities for cooperation with other agencies in research. Resources in other colleges, in industries, must be sought and brought to bear on research problems.

The role of the university in research must be interpreted so that it is publicly understood. Scholars and research workers very often feel that their work does not need wide recognition by the public. They are apt to be grouchy when their laboratories are invaded by people more concerned with the people's understanding of what is being done than with the pursuit of truth pure and undefiled. But the administrator must recognize the public's right to knowledge of activity in the research laboratory and must seek tactfully to encourage the scientist to present his work clearly and expressively to the layman. Upon the layman's understanding rests our hope of more wide spread support.

In short, the best technical skill in a university must be seconded by the best in administrative capacity.

Problems

I

We must recognize, of course, that the expansion of research activities in our colleges brings in its train new problems or old problems with new importance.

Research workers do not just appear full-grown—they must have careful preparation over long periods of time. They must have close association with

the best science and the best scientists that can be found. Without this training, particularly at the graduate level, they become technicians rather than real research workers.

We cannot, therefore, as we continue to concern ourselves with the advancement of research, afford to neglect the teaching function of our institutions. Some professors develop the attitude that the sole end of the institution is research and that anything else is unimportant; there are those who take that position so strongly that in their minds the student becomes a kind of necessary evil in the institution.

It is important, I think, that the institution determine its attitude toward the balance between its teaching function and its research program. The institution should define its purposes as between research and instruction; decide how they inter-act, and always relate planning to stated purposes.

I am not proposing that every institution give equal emphasis to research and teaching. The point I make is that having announced a total program, no part of that program should be neglected. An institution might establish a research program in which the instruction would be relatively minor. On the other hand, some institutions will stress teaching. We should not allow the expanding role of research unconsciously or without intention to upset institutional purpose. It is possible, I believe, so to organize and operate institutions that engage in research that they achieve multiple purposes.

II

Another problem that has come with the expansion of research activity in general is the drafting of research workers from universities. With the growth of industrial laboratories and

governmental activities, good men are being attracted by industry's and government's ability to outbid the university and often to out-equip the campus in certain fields.

The development of the government's research program in atomic energy is a source of great concern to all colleges. Some of the best men are going to the laboratories operated by governmental agencies. Certain well-established institutions, with government help, are becoming the centers of research and taking researchers away from others. This applies to all phases of research, including research in the social sciences. There is the tendency for the disbursing agencies to concentrate on a few institutions and to assign to them more projects than their present staffs can handle, while failing to make adequate use of the capacities of other institutions. To illustrate this point, it has been pointed out that a relatively small number of institutions are receiving over 90 percent of all research financing from industry and from the Army and Navy. A continuation of this disproportionate award of grants to a limited number of institutions not only will "widen the gap between the large and the small universities and technical schools; it will literally dwarf the latter by drawing Foundation-subsidized students and underpaid but competent instructors to the former."

III

Another problem facing the universities is allied to the one I have just discussed. It concerns the withdrawal of competent people from the classroom, with its necessary effect on the supply of new research and teaching talent. Here again, may I refer to my belief that universities must define their purposes and maintain their direction toward these purposes, without

unconsciously or carelessly deviating from them. Research without a continuing cultivation and development of young researchers is sterile. Institutions cannot afford to weaken their instructional staffs.

IV

I have stressed the need for a balanced program of teaching and research. There is a similar need for balance among the fields of research. Today, a concentration of interest exists in the natural science fields. There is no question about the importance of the natural sciences. Our health, our prosperity, and our national security demand continued advance in this research. But we can properly criticize the neglect of research in the social sciences and humanities. It seems to me that we need to study, to evaluate, and to make widely known the contributions which research in these fields can make to the building of a strong, resilient society.

Dr. Talcott Parsons, of Harvard University, in urging the inclusion of the social sciences in any federal program for support of scientific research, says:

"In the first place, the urgency of the practical needs for rational control of social processes is so great and so obvious as scarcely to need discussion. Most scientists as well as other intelligent citizens, would agree that the great problems of our time are not those of the control of nature but of the stability and adequacy of the social order. It is not the urgency of social problems; it is the question of whether the scientific method is capable of making a significant contribution to their solution which needs discussion."⁸

Dr. Parsons and many others have

⁸ Talcott Parsons, "Science Legislation and the Social Sciences," *Political Science Quarterly*, Vol. 62, No. 2 (June, 1947), p. 241.

pointed out the inseparability of the natural and social sciences, that in the study of man, the scientist is dealing with an organism whose behavior "is in fact partly, though only partly, understandable in biological terms and that the senses in which it is biological and those in which it is psychological and sociological are so closely interdependent that it is not in the interest of science to attempt to set up watertight compartments between these different aspects. Each side needs the contributions of the others, and many of the most important problems face across the line."⁹

The failure to recognize the potentialities of social science research is dramatically illustrated in the refusal of Congress to include provision for its support in the bills to establish the National Science Foundation.

There is not the time in this presentation to outline the current misapprehensions concerning social science research or to analyze past weaknesses and necessary changes in this field to justify full public confidence. But the premise must be asserted and repeated, as phrased by President Conant, "... in every section of the entire area where the word science may be applied, the limiting factor is a human one. We shall have rapid or slow advance in this direction or in that depending on the number of really first-class men who are engaged in the work in question . . ."¹⁰

Dr. Talcott Parsons has put it this way: "A society which is afraid of public support of social science is by that token less likely to attract the type of intellectual ability into these fields on which the most fundamental theoretical development will be dependent."¹¹

The disproportionate emphasis on research in the natural sciences and the corresponding neglect of research in the social sciences reflect, of course, the interests of those who provide much of the financial support for research programs. Our arguments must be directed not alone to public officials and legislative agencies, however. If you examine the purposes for which the large foundations have expended their funds, you will discover that they, too, have helped to bring about this concentration of effort.

I am not suggesting here that it is the duty of university administrators to repel the financial assistance of the representatives of the Foundations. What I am trying to say is that there are many fields to which Foundation money has not gone in large amounts and which will yield excellent results if explored.

V

There is another problem related to the disproportionate financial support for research just described. The present method of ear-marking grants-in-aid tends to restrict the freedom of the investigator to seek truth in whatever direction it may be found. A large measure of freedom in selecting research projects should be exercised by those who are actually carrying on the research. In this connection Dr. Alan Gregg, Director of the Medical Sciences for the Rockefeller Foundation, says:

This experience in selecting research projects, in estimating their possibilities and appraising their performance, has tended to become the function of persons outside the ranks of actual investigators. It is a privilege which of late has fallen to the officers of the Foundations, instead of remaining the responsibility of the investigators or the administrators of our universities. The treasurer's report for 1942 in a well-known western university showed a total of \$847,000 in contributions for current purposes, of which less than \$47,000 was reported as unearmarked money. With less than 5 percent of the research funds on

⁹ *Ibid.*, p. 443.

¹⁰ As quoted in Vannevar Bush, *op. cit.*, p. 8.

¹¹ Talcott Parsons, *op. cit.*, p. 244.

which to exercise their powers of discrimination and selection, the faculty no less than the administrative officers may be expected to lose first their liberty, then their responsibility, and finally their ability to exercise judgment as to what research is worth doing. It is my personal conviction that the Foundations have set an example and established a fashion of giving earmarked funds, which has been followed by a large number of private donors, and which possesses among obvious attractions some serious eventual disadvantages for the recipient institutions. Principal among the disadvantages are the emphasis placed upon showmanship and expert mendicancy, the atrophy through disuse of the critical faculty, the loss of responsibility for local problems and of pride in tackling them independently, and finally a restlessness that is second cousin to the restlessness caused by absentee ownership.¹²

It seems to me that university administrators must attempt to counteract the tendency toward unevenness of support of the total research program. One of the possibilities is suggested by Dr. Gregg himself, and, therefore, deserves respect because of his association with one of the largest of the Foundations. He suggests, as a device to correct the predominance of earmarked financing of research, the establishment of a fluid research fund. If such funds were available in sufficient amount, the direction of research would be returned to the institutions where the work is being done.

These are but a few of the problems that confront us as we appraise the expanding role of research. Their complexity and their importance are, in a way, an index of the significance of the results we seek to achieve.

"University" Research

One more area of investigation should be included in this analysis. Universities, as agencies of research, should be alert to apply the research technique to their own business. One

often finds business organizations employing processes and methods which are out-dated, simply because they have never heard of newer, better methods which research has developed. So do we find universities with enviable research programs ignoring research problems in university education whose solution would improve their own effectiveness. We need to know more about our students, their needs and how better to meet those needs. We need better measures of teaching competence, improved personnel procedures, and more efficient ways of giving service. The manner in which we conduct our own institutional business should be a reflection of our competence in the research method.

Conclusion

The expanding role of research in education is, I think, a thrilling and exciting theme. I have tried to outline the opportunities, the obligations, and the problems as they are likely to appear in a large university. They will not appear alike or in total in any one institution, but I think the array here given defines the range within which we may expect to work.

It should be apparent to everyone that the university role is a heavy one, and its fulfillment will require expert administration and imaginative leadership. Certainly, it must have institutional implementation. It no longer can be left casually to the individual professor or to a committee of the faculty. The fulfillment of the role, we must recognize too, is important not only to the student and to the institution, but to every phase of American society from industry to government, and to society itself. The old reference to the inquiring mind as an integral part of the educational process now comes to have basic meaning in all educational activity.

¹² Alan Gregg, "A Critique of Medical Research," *Proceedings of the American Philosophical Society*, Vol. 87, No. 4 (January 29, 1944), p. 315.

THE FINANCIAL STATUS OF MEMBER COLLEGES AND UNIVERSITIES OF THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS—A PRELIMINARY REPORT

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THE report on Finance on which this preliminary study is based was submitted by the member colleges and universities of the North Central Association in the Autumn of 1947 and covered in each case the institution's most recently completed fiscal year. The report on Finance is one of the series of three regular biennial studies for which provision is made under the reporting procedure adopted by the Association in 1940. The two other biennial reports which are submitted by member institutions during the six-year cycle pertain to the status of the faculties of the member colleges and universities and to the status of the institutional libraries. This system of reporting provides a periodic check on the status of the member institutions in these three areas and, in addition, provides the data necessary for the revision of norms which are used in the evaluation of institutions applying for membership in the Association.

The forms for the Finance report were prepared by the Committee on the Evaluation of Accrediting Procedures, assisted by sub-committees representing each of the four groups into which the member colleges and universities are divided for the purposes of accrediting activities. These groups are defined as follows:

Group 1.—Institutions offering two-year programs beyond high school graduation.

Group 2.—Institutions offering only Bachelor's degrees in a single unitary organization. Institutions offering only an occasional Master's degree may be included in this group.

Group 3.—Institutions organized in more than one but not more than three separate administra-

tive units; and institutions which regularly offer Master's and/or professional degrees.

Group 4.—Institutions offering Doctor's degrees; and institutions organized in four or more units and which regularly offer Master's and/or professional degrees.

The report on Finance was submitted by 325 member colleges and universities and on the basis of the data secured, revised norms pertaining to the areas in Finance were computed. The revised norms are presented below, together with some tabulations comparing the revised norms with the norms based on data for previous years. This report is preliminary only; a more complete analysis of the financial status of the member institutions of the Association is now in process and the findings will be reported at a later date.

With the exception of the sections of the reports pertaining to institutional indebtedness and to expenditures for library books, the data submitted by the fifty-three Catholic member institutions have been excluded from the computation of the revised norms. The necessity for this arises from the fact that, since the value of contributed services must be estimated, the income and expenditure figures for Catholic institutions are approximations rather than exact figures.

The Finance report which was submitted in the autumn of 1947 provides data necessary for the revision of norms on the following criteria of institutional excellence; educational and general expenditures per student, educational and general income per student, debt per student, median instructional sal-

ary, maximum instructional salary, median administrative salary, expenditures for library books, and expenditures for library salaries. The enrolment figures used in all of the computations involving a per student average represent an equated figure the basic unit of which is one student in full-time residence for the nine-months academic year. The equated figure used in all computations is based on enrolments for the entire fiscal year.

*Educational and General Expenditures
Per Student*

For the purposes of computing a per student figure "Educational and General Expenditures" include expenditures for administration and general purposes, resident instruction, libraries, plant operation and maintenance, and sales and services of educational departments and related activities. Expenditures for separately budgeted, organized research and separately organized extension services and correspondence study have been excluded from the computations. Also excluded are expenditures for non-educational purposes, for auxiliary enterprises, and capital outlay.¹ The per student expenditure figure is derived by dividing total educational and general expenditures by the equated enrolment figure described above. The quotient is then weighted for size of enrolment and scope of program. The findings of research indicate that, other things being equal, the amount of educational expenditure necessary to maintain a program of a given level of excellence varies inversely, within certain limits, with the size of the student body. The

weightings used are set forth in the *Revised Manual of Accrediting*, section on *Finance*, page 3. In addition to the weighting for size, a corrective multiplier of 1.78 is applied to per student expenditures for junior colleges. The latter weighting is designed to correct for the more limited scope of the junior college which would permit the maintenance of a program of a given level of excellence with a lower per student expenditure than would be required in a senior college.²

Table I shows the distribution of the scores on the item "Weighted Educational and General Expenditures per Student" for all member colleges and universities (with the exception of Catholic institutions and a few other institutions for which data were incomplete at the time the computations were made) for the fiscal years 1933-34, 1939-40, and 1946-47. This and suc-

TABLE I
DISTRIBUTION OF SCORES ON THE ITEM
"WEIGHTED EDUCATIONAL AND GENERAL
EXPENDITURES PER STUDENT" FOR
1933-34, 1939-40, AND 1946-47

Per- centile Rank	1933-34 228 Insti- tutions	1939-40 222 Insti- tutions	1946-47 262 Insti- tutions
90	357	381	521
80	294	320	434
70	253	292	389
60	231	262	352
50	210	241	317
40	187	218	289
30	162	193	267
20	147	172	243
10	122	150	211
75	274	311	410
25	155	183	256
Q	59.5	64	77

¹ In its classification and definitions of income and expenditures items this report follows the recommendations of the National Committee on Standard Reports for Institutions of Higher Education reported in *Financial Reports for Colleges and Universities*, published by the University of Chicago Press in 1935.

² Reference: John Dale Russell and Floyd W. Reeves: *Finance*, Vol. VII, The Evaluation of Higher Institutions, Chicago, Illinois, The University of Chicago Press, 1935, pp. 14-47.

ceeding tables should be read as follows: an institution with a score of 389 in 1946-47 on the item "Weighted Educational and General Expenditures per Student" would rank at the 70th percentile in comparison with the other member colleges and universities of the North Central Association.

Table I shows that the range in educational and general expenditures per student became larger with each successive study. In other words, during the period under consideration the spread on this item between the higher ranking and the lower ranking institutions grew larger. It will also be noted that the score at each decile increased from 1933-34 to 1939-40, and again to 1946-47. The increase in expenditures has been such that the median score of 210 in the 1933-34 study would in the 1946-47 study have had a percentile rating of 10; the median score of 241 in the 1939-40 study would have had a percentile rank of 20 on the norms derived from the 1946-47 study. Since enrolments in higher institutions were substantially higher in 1939-40 than in 1933-34, and were very much higher in 1946-47 than in 1939-40, the increasing per student expenditures indicate that expenditures increased at a more rapid rate than enrolments. As one would expect, the increases between 1939-40 and 1946-47 were much greater than between 1933-34 and 1939-40.

In order to illustrate this increase in scores between the last two studies, Table II is presented giving the percentile ranks which would have been assigned institutions with various expenditures under the 1939-40 norms, and the ranks which were assigned on the basis of the 1946-47 norms. While half of the scores were above 317 on the more recent study, slightly less than one-fourth of the scores were above that point on the 1939-40 study.

It is important to recognize that the

TABLE II

COMPARISON OF PERCENTILE RANKS IN 1939-40 AND 1946-47 FOR SELECTED SCORES ON THE ITEM "WEIGHTED EDUCATIONAL AND GENERAL EXPENDITURES PER STUDENT"

Weighted Educational & General Expenditure per Student 1946-47	Percentile Rank 1939-40	Percentile Rank 1946-47
521	98	90
434	95	80
389	91	70
352	86	60
317	77	50
289	69	40
267	62	30
243	51	20
211	37	10

increases in per student expenditures discussed above do not represent a real change in the financial positions of these institutions. It may even be that, because of the decline in the purchasing power of the dollar, the level of expenditures, in terms of the services which can be bought, is lower at the end of the period than it was at the beginning. Though neither the Bureau of Labor Statistics Consumer Price Index nor the Bureau of Labor Statistics Wholesale Price Index can be thought of as wholly appropriate measures of the change in purchasing power of the college dollar, it is not without significance that from 1939-40 to 1946-47 the Consumer Price Index rose by approximately 50 per cent and the Wholesale Price Index by almost 80 per cent, while expenditures per student at the 50th percentile increased during the same period by only 31.5 per cent.

Table III shows the distribution of the scores on the item "Weighted Educational and General Expenditures per Student" by deciles for each of the institutional groups for the fiscal years 1939-40 and 1946-47.

In each of the four groups the median

TABLE III

DISTRIBUTION OF SCORES ON THE ITEM "WEIGHTED EDUCATIONAL AND GENERAL EXPENDITURES PER STUDENT" BY INSTITUTIONAL GROUPS FOR 1939-40 AND 1946-47

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1939-40 33 Insti- tutions	1946-47 42 Insti- tutions	1939-40 89 Insti- tutions	1946-47 112 Insti- tutions	1939-40 67 Insti- tutions	1946-47 63 Insti- tutions	1939-40 37 Insti- tutions	1946-47 45 Insti- tutions
90	407	640	328	457	393	462	406	675
80	348	515	278	403	330	415	371	533
70	300	455	249	348	300	378	350	431
60	268	402	227	315	268	344	317	392
50	248	350	204	291	248	312	302	373
40	216	315	189	274	231	288	269	354
30	198	260	174	257	206	268	250	315
20	168	220	155	235	184	248	229	281
10	135	185	140	210	152	213	205	253
75	318	481	265	375	316	396	359	488
25	176	238	163	248	194	259	241	295
Q	71	122	51	64	61	69	59	97

for 1946-47 shows an increase over the median for 1939-40 with the largest increase appearing in the Group 1 (junior college) classification. In interpreting the changes in scores attention should be called, not only to the change in the purchasing power of the dollar, but also to the fact that the scores presented are not actual dollar expenditures. They are, rather, hypothetical scores derived by applying to actual expenditures, weightings designed to correct for scope of program (in the case of the junior colleges) and for size of enrolment. Thus, the application of the scope of program corrective multiplier of 1.78 to the Group 1 scores results in a greater difference between the scores reported in Table III than would exist were the multiplier not used. The weightings for size of enrolment apply only to enrolments of less than 1050. Since institutional enrolments were in most cases higher in 1946-47 than in 1939-40, part of the increase in scores shown in Table III is due to the application of smaller

weightings rather than to an actual increase in dollar expenditures.

Educational and General Income Per Student

In the computation of the item "Educational and General Income per Student," income from the following sources is included: student fees, endowment earnings, tax support or public funds, private gifts and grants, and sales and services of educational departments and related activities. Income for separately organized research, extension services, and correspondence study have been excluded from the computations. Also excluded are income from auxiliary enterprises and funds designated for additions to plant and to permanent funds. The procedure for the computation of the per student figure in this instance is identical with the procedure outlined above in connection with the computation of the expenditure per student item.

Table IV shows the distribution of the scores on the item "Weighted

TABLE IV

DISTRIBUTION OF SCORES ON THE ITEM
"WEIGHTED EDUCATIONAL AND GENERAL
INCOME PER STUDENT" FOR 1933-34,
1939-40, AND 1946-47

Per- centile Rank	1933-34 228 Insti- tutions	1939-40 230 Insti- tutions	1946-47 264 Insti- tutions
90	385	450	612
80	288	371	517
70	262	321	456
60	237	280	411
50	210	254	373
40	183	234	338
30	165	207	304
20	148	178	272
10	127	151	237
75	275	349	486
25	157	192	288
Q	59	78.5	99

Educational and General Income per Student" for all member colleges and universities (with the exception of Catholic institutions and a few non-Catholic institutions for which data were not complete at the time of the analysis) for the fiscal years 1933-34, 1939-40, and 1946-47. As was true in the case of expenditures, the institutional scores on this item increased greatly during the period 1933-34 to 1939-40 to 1946-47. The observations made in connection with the discussion of weighted expenditure per student are, of course, also pertinent in considering the interpretation of the changes in per student income.

When Table IV is compared with Table I a tendency for educational and general income to increase more rapidly than educational and general expenditures will be observed. In 1933-34, a year of economic depression, the scores for educational and general income corresponded closely with the scores for educational and general expenditures. At the 50th percentile the scores were identical (210). In 1939-40 the

income scores were higher than the expenditure scores throughout the distribution. At the 50th percentile the income score (254) exceeded the expenditure score (241) by 5.4 per cent. In 1946-47 the excess of income per student over expenditures per student was still greater. At the 50th percentile the income score (373) exceeded the expenditure score (317) by 17.7 per cent. The income score at the 50th percentile in 1946-47 was 46.9 per cent higher than the income score at the 50th percentile in 1939-40, while the expenditure score at the 50th percentile in 1946-47 was only 31.5 per cent higher than the comparable score in 1939-40.

In some cases the surpluses accumulated in 1946-47 would have been spent, at least in part, for current educational purposes had the desired materials and services been available. For example, the short supply of qualified staff personnel might have compelled the postponement of certain staff appointments even though the necessary funds were available. Similarly, it is probable that funds available for the purchase of library books were in many cases not spent because the books could not be obtained. In other cases it is doubtless true that surpluses arising out of current operations have been set aside for plant and equipment expansion and improvement.

Table V presents the distribution of the scores on the weighted income per student item by institutional groups for the fiscal years 1939-40 and 1946-47.

Changes between the group norms for the two years are comparable to those which have already been noted in the discussion of weighted expenditure per student. Comparison of Table V with Table III indicates that in general the excess of educational and general income over educational and general expenditures in 1946-47 was

TABLE V

DISTRIBUTION OF SCORES ON THE ITEM "WEIGHTED EDUCATIONAL AND GENERAL INCOME PER STUDENT" BY INSTITUTIONAL GROUPS FOR 1939-40 AND 1946-47

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1939-40 35 Insti- tutions	1946-47 43 Insti- tutions	1939-40 89 Insti- tutions	1946-47 113 Insti- tutions	1939-40 68 Insti- tutions	1946-47 63 Insti- tutions	1939-40 39 Insti- tutions	1946-47 45 Insti- tutions
90	390	642	354	523	462	585	522	838
80	340	568	296	452	377	480	477	638
70	315	489	256	391	343	446	461	575
60	267	420	238	358	296	417	414	533
50	248	375	224	332	274	386	355	508
40	220	342	199	307	255	351	324	439
30	198	299	176	281	224	312	285	414
20	180	263	163	254	192	280	267	375
10	150	223	142	224	158	251	233	308
75	328	531	274	417	360	462	469	609
25	189	281	170	267	205	294	275	401
Q	70	125	52	125	78	84	97	104

greater among the larger, more complex institutions (Groups 3 and 4) than in the Group 1 and Group 2 institutions. At the 50th percentile the percentage excess of income over expenditures in 1946-47 was as follows: Group 4, 36.2 per cent; Group 3, 23.7 per cent; Group 2, 14.1 per cent; Group 1, 7.1 per cent.

Debt Per Student

The base figure which is used in the computation of the item "Debt per Student" is the total indebtedness which is owed to outside parties at the close of the last completed fiscal year; the fiscal year employed in the current study on Finance is the year 1946-47. The equated enrolment figure is identical with the one used in the computation of both expenditure and income per student items; the debt per student figure is not, however, weighted for size of enrolment nor for scope of program.

Table VI shows the distribution of the scores on the item "Debt per Student" by deciles for 1933-34, 1939-40,

and 1946-47; a few institutions were excluded because of incomplete data.

A comparison of the "all" figures for 1939-40 and 1946-47 indicates that the range in scores on this item decreased during the seven year interval between the two studies. While in 1939-40 more

TABLE VI

DISTRIBUTION OF SCORES ON THE ITEM "DEBT PER STUDENT" FOR 1933-34, 1939-40, AND 1946-47

Percentile Rank	1933-34	1939-40	1946-47
90	0	0	0
80	0	0	0
70	0	0	0
60	0	18	0
50	20	50	0
40	60	97	20
30	140	174	70
20	300	307	149
10	590	498	267
75	0	0	0
25	220	223	107
Q	110	112	54

than 60 per cent of the member institutions reported some indebtedness, only 44 per cent of the member colleges and universities reported any indebtedness to outside parties for the fiscal year 1946-47.

Table VII shows the distribution of the scores on the item "Debt per Student" for each of the four groups for 1946-47; group norms on this item for 1939-40 are not available.

TABLE VII

DISTRIBUTION OF SCORES ON THE ITEM "DEBT PER STUDENT" BY INSTITUTIONAL GROUPS FOR 1946-47

Per- centile Rank	Group 1 1946-47 43 Institu- tions	Group 2 1946-47 140 Institu- tions	Group 3 1946-47 70 Institu- tions	Group 4 1946-47 53 Institu- tions
90	0	0	0	0
80	0	0	0	0
70	0	0	0	0
60	0	0	0	7
50	0	0	0	33
40	0	0	24	68
30	27	65	50	121
20	135	143	138	190
10	285	292	225	278
75	0	0	0	0
25	62	96	94	148
Q	31	48	47	74

The percentage of the institutions in each of the four groups which report indebtedness is 35, 39, 49, and 63 for Groups 1, 2, 3, and 4 respectively. This suggests a direct relationship between the extent to which institutions owe money to outside parties and the degree of institutional complexity as measured by complexity of administrative organization and kinds of degrees granted.

Faculty Salaries

Data used in the computation of three salary measures, the median instructional salary paid by an institu-

tion, the maximum instructional salary paid by an institution, and the median administrative salary, were included in the recent finance reports submitted by member colleges and universities of the Association. The salary figures are as of the Autumn of 1947. Included under administrative salaries are the salaries of persons holding the following or similar positions: president, vice-president, assistant to the president, academic dean, student personnel officer, business officer, librarian and assistant librarians, registrar and assistant registrars, and extension director and assistant directors. The salaries of administrative officers who teach are included under administrative salaries, and not under instructional salaries. To insure comparability of data, all salaries are reduced to an academic year (usually nine or ten months) basis and only those persons who are on a full-time appointment are included in the salary measures. Information concerning salaries is presented in Tables VIII-XIII. The scores are reported in dollars.

Table VIII shows the distribution of

TABLE VIII

DISTRIBUTION OF SCORES ON THE ITEM "MEDIAN INSTRUCTIONAL SALARY" FOR 1935-36, 1945-46, AND 1947-48

Per- centile Rank	1935-36 228 Insti- tutions	1945-46 257 Insti- tutions	1947-48 265 Insti- tutions
90	2525	3356	3827
80	2317	3131	3629
70	2117	2987	3519
60	2025	2826	3390
50	1925	2684	3273
40	1790	2542	3187
30	1688	2392	3102
20	1517	2180	2760
10	1350	1970	2591
75	2200	3060	3574
25	1600	2285	2848
Q	300	388	363

TABLE IX
DISTRIBUTION OF SCORES ON THE ITEM "MEDIAN INSTRUCTIONAL SALARY"
BY INSTITUTIONAL GROUPS FOR 1945-46 AND 1947-48

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1945-46 45 Insti- tutions	1947-48 43 Insti- tutions	1945-46 105 Insti- tutions	1947-48 113 Insti- tutions	1945-46 63 Insti- tutions	1947-48 62 Insti- tutions	1945-46 44 Insti- tutions	1947-48 47 Insti- tutions
90	3610	3835	3175	3655	3306	3820	4024	4360
80	3250	3593	3000	3536	3113	3627	3310	3884
70	3060	3417	2860	3401	2928	3523	3166	3699
60	2800	3290	2708	3280	2778	3380	3098	3631
50	2620	3000	2559	3209	2664	3268	3031	3564
40	2350	2805	2435	3139	2549	3203	2920	3496
30	2150	2698	2285	2870	2435	3138	2780	3391
20	2000	2602	2117	2709	2224	2847	2670	3283
10	1888	2507	1922	2574	2037	2628	2520	3149
75	3150	3479	2930	3472	3008	3575	3200	3790
25	2075	2650	2204	2789	2350	3105	2725	3339
Q	538	415	363	342	329	235	238	226

institutional scores by deciles on the item "Median Instructional Salary" for the years 1935-36, 1945-46, and 1947-48. Catholic institutions have been excluded from the computations because of the large number of staff members in those institutions who contribute their services.

That salaries paid by member institutions have been raised substantially during the period under consideration is at once apparent. A median instructional salary of \$2525 would have placed an institution at the 90th percentile on this item on 1935-36 norms, below the 40th percentile on 1945-46 norms, and below the 10th percentile on 1947-48 norms. In order to rank at the 50th percentile on this salary item in the Autumn of 1947 an institution would have had to have a score of 3273, whereas in 1935-36 a score of 1925 would have placed an institution at the 50th percentile.

Between 1935-36 and 1945-46 the institutional median instructional salary at the 50th percentile increased

from \$1925 to \$2684, an increase of 39.4 per cent. At the 70th percentile there was an increase in median instructional salary of 41.1 per cent. and at the 30th percentile, 41.7 per cent. From the Autumn of 1935 to the Autumn of 1945 the Consumer Price Index (Bureau of Labor Statistics) increased by 30.7 per cent. Therefore, to the extent that the median instructional salary may be thought of as representative of the general level of salaries, faculty salaries more than kept pace with the declining purchasing power of the consumer dollar as measured by the change in the Consumer Price Index.

Between 1945-46 and 1947-48 the institutional median instructional salary at the 50th percentile increased by 21.9 per cent. The percentage increases at points above the 50th percentile in the distribution were smaller, while at points below the 50th percentile the percentage increases were larger. For example, at the 70th percentile the percentage increase was 17.8; at the 30th percentile it was 29.7. Assuming that,

for the most part, there were not significant changes between 1945-46 and 1947-48 in the positions held by member institutions in the distribution, it would appear that the lower ranking institutions on this salary item—those where the need for salary increases would be the greatest during a period of rising prices—were the institutions where the largest percentage increases in salaries were made. Even in the lower levels of the distribution, however, the increase was barely sufficient to compensate for the rising cost of living which, as measured by the Consumer Price Index, rose by 27.1 per cent between October of 1945 and October of 1947.

Not only were the percentage increases between 1945-46 and 1947-48 larger at the lower levels of the distribution; the actual increases in dollars were also greater at the lower levels than at the higher levels. This is a reversal of the trend between 1935-36 and 1945-46 where the largest dollar increases occurred at the higher points in the distribution.

TABLE X

DISTRIBUTION OF SCORES ON THE ITEM
"MAXIMUM INSTRUCTIONAL SALARY" FOR
1935-36, 1945-46, AND 1947-48

Per- centile Rank	1935-36 228 Insti- tutions	1945-46 257 Insti- tutions	1947-48 265 Insti- tutions
90	4700	5622	7312
80	3700	4395	5711
70	3225	4066	5192
60	2983	3786	4803
50	2733	3583	4467
40	2533	3293	4217
30	2283	3051	3966
20	2075	2834	3706
10	1825	2560	3385
75	3450	4227	5412
25	2200	2949	3836
Q	625	639	788

Table IX provides a distribution of the scores on the item "Median Instructional Salary" for the two years 1945-46 and 1947-48 for each of the four institutional groups (Catholic institutions excluded).

The Group 4 institutions, in general the larger and more complex institutions and those institutions which as a group pay the highest salaries, show smaller percentage increases in salaries during the two-year interval than do the Group 2 and Group 3 institutions. At the 70th, 50th, and 30th percentiles in the distribution of Group 4 institutions the increases in median instructional salary were 16.8 per cent, 17.6 per cent, and 22.0 per cent, respectively. In Group 3 the increases at the same percentiles were 20.3, 22.7 and 28.9; in Group 2, 18.9, 25.4 and 25.6. This finding is not surprising in view of the fact that, during a period of rising prices, the pressures for higher salaries would probably not be as great where the salary level is relatively high as they would be where the level of salaries is low.

In the upper levels of the distribution, the Group 1 institutions, the junior colleges, show much smaller percentage increases on the item "Median Instructional Salary" than are found in the upper levels of the distributions for the other groups. At the 70th percentile the percentage increase was 11.7, and at the 50th percentile, 14.5. Below the 50th percentile the increases shown for Group 1 institutions are more nearly in line with the increases in the lower levels of the other group distributions. It will also be observed that the dispersion of scores as measured by the quartile deviation is greater among the Group 1 institutions than in any of the other three groups. In other words, the differences between high and low ranking institutions with respect to median instruc-

TABLE XI

DISTRIBUTION OF SCORES ON THE ITEM "MAXIMUM INSTRUCTIONAL SALARY"
BY INSTITUTIONAL GROUPS FOR 1945-46 AND 1947-48

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1945-46 45 Insti- tutions	1947-48 43 Insti- tutions	1945-46 105 Insti- tutions	1947-48 113 Insti- tutions	1945-46 63 Insti- tutions	1947-48 62 Insti- tutions	1945-46 44 Insti- tutions	1947-48 47 Insti- tutions
90	3993	4892	4464	5561	4910	5925	8260	13300
80	3800	4367	4067	5060	4265	5412	7430	11300
70	3470	4178	3758	4684	4019	5100	6380	8980
60	3200	4070	3583	4300	3770	4810	6005	8040
50	3088	3925	3294	4141	3612	4594	5150	7100
40	2975	3721	3040	4023	3432	4340	4595	6475
30	2810	3568	2848	3825	3197	4067	4310	5910
20	2500	3380	2690	3618	3025	3808	4085	5440
10	2150	3108	2488	3353	2798	3550	3755	4958
75	3631	4231	3892	4865	4147	5229	7100	10417
25	2675	3488	2769	3719	3111	3938	4200	5675
Q	478	372	562	573	518	646	1450	2371

tional salaries is greater among the junior colleges than in the other institutional groups.

The distribution of the scores on the item "Maximum Instructional Salary" for all institutions for 1935-36, 1945-46, and 1947-48 are presented in Table X; by institutional groups for 1945-46 and 1947-48, in Table XI.

Table XII reports by deciles the distribution of institutional scores on the item "Median Administrative Salary" for 1935-36, 1945-46, and 1947-48. The percentage increases from 1935-36 to 1945-46 at various points on this distribution do not differ materially from the percentage increases during the same period on the item "Median Instructional Salary" (Table VIII). For example, from 1935-36 to 1945-46 the percentage increases in median administrative salaries at the 70th, 50th and 30th percentiles were 41.9, 41.4, and 38.9, respectively, which compares with increases at the same percentiles on the distribution of median instructional salaries of 41.1 per-

cent, 39.4 percent, and 41.7 percent.

However, between 1945-46 and 1947-48 the percentage increases in median administrative salaries appear to be somewhat greater at the higher deciles and smaller at the lower deciles than

TABLE XII

DISTRIBUTION OF SCORES ON THE ITEM "MEDIAN
ADMINISTRATIVE SALARY" FOR 1935-36,
1945-46, AND 1947-48

Per- centile Rank	1935-36 228 Insti- tutions	1945-46 257 Insti- tutions	1947-48 265 Insti- tutions
90	3050	4021	4956
80	2650	3629	4359
70	2367	3359	4019
60	2233	3132	3728
50	2088	2952	3456
40	1960	2729	3246
30	1813	2519	3036
20	1650	2344	2738
10	1500	2086	2392
75	2475	3488	4189
25	1750	2431	2806
Q	363	529	647

TABLE XIII

DISTRIBUTION OF SCORES ON THE ITEM "MEDIAN ADMINISTRATIVE SALARY"
BY INSTITUTIONAL GROUPS FOR 1945-46 AND 1947-48

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1945-46 45 Insti- tutions	1947-48 43 Insti- tutions	1945-46 105 Insti- tutions	1947-48 113 Insti- tutions	1945-46 63 Insti- tutions	1947-48 62 Insti- tutions	1945-46 44 Insti- tutions	1947-48 47 Insti- tutions
90	3762	4838	3575	4218	3852	4450	4820	7162
80	3457	4400	3260	3919	3613	4081	4560	5800
70	3264	4092	3050	3616	3376	3820	4310	5207
60	3087	3690	2850	3389	3134	3550	4020	4850
50	2919	3475	2594	3212	2945	3321	3800	4472
40	2700	3260	2473	3089	2756	3119	3480	4211
30	2493	2954	2352	2930	2570	2880	3260	3950
20	2300	2775	2205	2673	2398	2570	3080	3689
10	2030	2519	2030	2384	2098	2300	2915	3283
75	3361	4266	3143	3744	3508	3975	4450	5375
25	2396	2865	2292	2801	2484	2725	3162	3819
Q	483	701	426	472	512	625	644	778

the percentage increases in median instructional salaries. Assuming that, for the most part, there were not significant changes between 1945-46 and 1947-48 in the positions held by member institutions in the distribution, and assuming further that most institutions would rank relatively high or relatively low on both median instructional salary and median administrative salary, these findings suggest that the higher ranking institutions increased administrative salaries proportionately more than instructional salaries, whereas the lower ranking institutions made the greater proportionate increases in instructional salaries.

Table XIII presents for 1945-46 and 1947-48 the distribution of scores on the item "Median Administrative Salary" by institutional groups. Comparison with Table IX shows that for Groups 2 and 4 the percentage increases in median administrative salaries were approximately the same as the percentage increases in median instructional salaries. In the distribution of

Group 2 institutions the percentage increases in median instructional salaries at the 70th, 50th, and 30th percentiles were 18.9, 25.4, and 25.6, respectively; in median administrative salaries at the same percentiles, 18.6, 23.8, and 24.6. For Group 4 institutions at these same percentiles the percentage increases in median instructional salaries were 16.8, 17.6, and 22.0; in median administrative salaries, 20.8, 17.7, and 21.2.

Among Group 3 institutions the percentage increases on the item "Median Administrative Salary" were very much less (13.2, 12.8, and 12.1 at the 70th, 50th, and 30th percentiles) than the percentage increases on the item "Median Instructional Salary" (20.3, 22.7, and 28.9 at the same percentiles). So far as Group 1 institutions are concerned, the situation is not entirely clear, but it appears that at the upper deciles the percentage increase in median administrative salaries was considerably greater than the percentage increase in median instructional sal-

TABLE XIV
DISTRIBUTION OF SCORES ON THE ITEM
"AVERAGE EXPENDITURE FOR BOOKS" FOR
THE FIVE YEAR PERIODS ENDING IN
1934-35, 1941-42, AND 1946-47

Per- centile Rank	Average Expenditure for Period Ending:		
	1934-35 221 Insti- tutions	1941-42 284 Insti- tutions	1946-47 313 Insti- tutions
90	7308	6623	10583
80	4228	3885	4836
70	3400	2819	3678
60	2703	2365	2931
50	2177	1865	2418
40	1595	1547	1937
30	1232	1162	1597
20	997	921	1257
10	632	618	837
75	3814	3171	4125
25	1070	1067	1427
Q	1372	1052	1349

aries while at the lower deciles the per-
centage increase in median adminis-
trative salaries was somewhat smaller

than the increase in median instruc-
tional salaries.

The general levels of salaries, both
administrative and instructional, are
higher in Group 4 than in the other
groups. Furthermore, comparison of
Tables IX and XIII indicates that the
difference between administrative sala-
ries and instructional salaries, as meas-
ured by institutional medians, is in
general greater among the Group 4 in-
stitutions than among the institutions
in the other groups. This is to be ex-
pected in view of the larger responsibil-
ities carried by administrative officers
in the larger, more complex institu-
tions.

Library Expenditures

Data pertaining to the two library
criteria which are related to the area of
Finance were requested of member
colleges and universities as part of the
Finance study submitted in the Au-
tumn of 1947. These two library items
are expenditures for books and ex-
penditures for salaries.

TABLE XV
DISTRIBUTION OF SCORES ON THE ITEM "AVERAGE EXPENDITURE FOR BOOKS" BY INSTITUTIONAL
GROUPS FOR THE FIVE-YEAR PERIODS ENDING IN 1941-1942 AND 1946-47

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1941-42 44 Insti- tutions	1946-47 43 Insti- tutions	1941-42 123 Insti- tutions	1946-47 147 Insti- tutions	1941-42 76 Insti- tutions	1946-47 69 Insti- tutions	1941-42 41 Insti- tutions	1946-47 54 Insti- tutions
90	1848	1892	4737	3739	4160	6050	27753	80000
80	1584	1533	2695	3129	3417	4844	21058	51000
70	1039	1305	2063	2674	2815	4325	13337	24833
60	861	1090	1903	2309	2518	3600	10062	20333
50	754	917	1663	1992	2345	2964	7191	12000
40	710	773	1289	1762	1942	2482	6505	9000
30	596	630	1151	1533	1608	2168	4681	7412
20	461	485	998	1283	1150	1733	3694	5824
10	336	329	725	1029	867	1272	2411	4253
75	1258	1412	2451	2890	3021	4653	15903	29167
25	502	558	1132	1409	1370	2011	4334	6618
Q	378	427	660	741	826	1321	5785	11275

TABLE XVI

DISTRIBUTION OF SCORES ON THE ITEM "WEIGHTED EXPENDITURE FOR LIBRARY SALARIES PER STUDENT" FOR 1941-42 AND 1946-47

Per- centile Rank	Group 1		Group 2		Group 3		Group 4	
	1941-42 36 Insti- tutions	1946-47 41 Insti- tutions	1941-42 96 Insti- tutions	1946-47 113 Insti- tutions	1941-42 72 Insti- tutions	1946-47 63 Insti- tutions	1941-42 44 Insti- tutions	1946-47 46 Insti- tutions
90	11.42	17.25	10.77	11.68	10.16	13.38	11.21	12.40
80	9.77	12.33	8.33	9.40	8.77	10.50	9.17	9.80
70	7.79	9.73	7.17	7.65	7.72	9.18	8.16	8.05
60	6.71	8.88	6.38	6.79	6.20	8.13	7.80	6.96
50	6.12	8.02	5.55	6.22	5.67	7.19	6.59	6.44
40	5.44	7.17	4.46	5.60	5.29	6.40	5.76	5.91
30	4.88	6.31	3.88	4.93	4.61	5.61	5.35	5.26
20	4.06	5.46	3.21	4.22	4.08	4.73	4.91	4.44
10	3.22	4.05	2.51	3.52	2.99	3.52	3.89	3.71
75	8.17	10.62	7.53	8.25	8.19	9.71	8.52	8.62
25	4.68	5.89	3.54	4.58	4.22	5.22	5.31	4.90
Q	1.75	2.37	2.00	1.84	1.99	2.25	1.61	1.86

The institutional measure relating to expenditures for books is the average annual expenditures for books during a five-year period. Table XIV presents the distribution of scores on this item by deciles for the three five-year periods ending with the years 1934-35, 1941-42, and 1946-47. The scores were at a somewhat lower level in 1941-42 than in 1934-35, but were at a higher level for the five-year period ending with 1946-47.

Table XV shows the distribution of

scores on average expenditures for library books for the two five-year periods ending with 1941-42 and 1946-47 for each of the four groups.

The institutional measure relating to library salaries is the expenditure for library salaries per student, weighted for enrolment and scope of program as described above. Table XVI presents the distribution of scores on this item for 1941-42 and 1946-47 by institutional groups.

BETTER TEACHING THROUGH AUDIO-VISUAL MATERIALS

Sub-Committee on Audio-Visual Education of the Committee on Current Educational Problems¹

THIS report which represents the joint efforts of all members of the Sub-Committee and several collaborators is presented by the Committee on Current Educational Problems with the hope that classroom teachers will find in it many valuable ideas and suggestions for the improvement of classroom instruction through the utilization of audio-visual materials.²

Introduction

In general, one person prepared the first draft of a chapter, after which the manuscript was thoroughly discussed and revised by the entire Committee. Hence, the final report is presented as a group project without signed chapters.

Responsibility for producing the original drafts of chapters is as follows: Chapter I, Mrs. Myrtle Sugarman; Chapter II, Robert E. Schreiber; Chapter III, I. Keith Tyler; Chapter IV, A. B. Roberts; Chapter V, Byron L. Westfall; Chapters VI and VII, Stephen M. Corey; Chapter VIII, Catherine Williams and Clair Tettermer.

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EDITOR'S NOTE: Since this report will appear relatively soon as an individual bulletin, it is printed here in that form.

CHAPTER I

THE IMPORTANCE AND SCOPE OF AUDIO-VISUAL MATERIALS

Walter Mitchell welcomed his visitor from the University.

"It's good to see you, Paul. What brings you to Franklin High School?"

Dr. Paul Miles, Associate Professor of Education from the University answered, "A very pleasant errand, Walt. I'm scouting around seeing what goes on in the high schools."

"Come on into the office and make yourself comfortable. What did you hear about our school? Outside of the proposed new building, I mean."

"You seem to be going to town in the audio-visual field. When we were talking about that kind of work the other day, Dean Turner said your whole faculty was becoming conscious of new techniques. What goes on anyway?"

"Nothing very spectacular. We've just been trying to make high school teaching something more exciting than the old read-recite-test routine."

"Well, don't pretend to be modest. What did you do to Franklin to expand on that formula. You always used to have the Training School in an uproar with your big ideas. We were sorry you left when you had a really exciting program going."

"Maybe that's why I left, Paul. Things could roll along without me. Somehow Franklin was a challenge. But, man, I had doubts that first year."

"Pretty hard to get new ideas started?"

"That is an understatement. Not that it wasn't a good program, but it had gone on so long and so smoothly

that nobody saw much reason for change. Academic standards were high. The student body was fairly homogeneous. Parents had gone to Franklin and wanted a tradition for their children. Sometimes I thought rigor mortis had set in. Then came the war."

"Don't tell me its effects were felt even in Franklin."

"You know what happened as well as I do. That quiet little factory that turned out medical instruments took a war contract that brought hundreds of new people in. The army post, asleep since the First World War revived with a loud roar. Lots of new youngsters came to Franklin. And it wasn't as easy as it had been to teach textbooks assignments with nothing more inspiring to look at than the bust of Julius Caesar or one of those sepia prints bequeathed by the class of 1911."

"So you had to do something to meet the new restlessness and all the other problems."

"I didn't have to point these things out to the teachers. They wanted a way to hold interest and keep pupils from feeling that the world was passing them by while they sat in school. We had a lot of drop outs, and most of the ones who left to take jobs or join the service told the same story. They couldn't sit in a classroom and just read books day after day when there were real jobs to do outside."

"That's one of the things I'm working on now, Walt. Trying to find out what's happening to those kids who left school and are just drifting around. But go on with your story."

"Well, at first it didn't go much beyond talk. The faculty wanted to do something more vital, but they didn't know exactly how to go about it. Whenever anyone suggested the possibility of using more audio-visual activities, they gave the same responses."

"You mean that standby, 'I don't know how to run the machine'?"

"Right. Then they pointed out that new equipment couldn't be purchased. Our system of routing the films and other equipment we already had on hand made using them more of a burden than a dividend. They howled down suggestions for thinking in terms of bulletin boards, specimens, models, demonstrations, and such. Too 'elementary school' they said. Just why teen-agers are supposed to learn by a totally different process from young children is one of the unsolved mysteries."

"Sounds like a checkmate, Walt. What finally happened?"

"Sergeant Bill Morgan had a fur-
lough."

"Who was he, one of the former students?"

"No, he was the answer to my prayers, one of our former teachers. I asked him to come over and talk to the faculty about the kind of instruction he was going through as he learned about the gun turrets on a bomber."

"Was he all-out for Army instruction?"

"No, he thought the Herbartian recitation system was old-time stuff, but he did go overboard for the charts, mock-ups, films, models, and other paraphernalia dismissed by the faculty as 'elementary school.' He sold them on the use of visual aids. Or at least he sold enough people to make a start."

"How did you go about this streamlining job?"

"First a committee rolled up its sleeves and made something workable out of the antiquated system we had for requisitioning and using the equipment on hand. Students participated in this and learned to operate the machines. This freed the teachers from being dependent on the physics and shop men for showing films. The art

teacher worked with groups to show how cartoons and pictures of all kinds could be something more than miscellany to look at. A script writer from the local station helped those interested to work out techniques for simple dramatizations and mock broadcasts since we had no broadcasting or recording equipment for the real thing. In a weak moment he promised that the station might use outstanding scripts. The physics and chemistry teachers worked out some demonstrations with equipment and charts which were large enough to see beyond the second row. The shop teachers came through and cooperated by doing the necessary 'hammer-and-saw' work."

"Sounds like the millennium, but very teacher-centered to me so far."

"That was one of the big changes in the set-up. The plans required the brain and muscle power of a lot of people. The war had cut down our teaching staff. We had to enlist the students. And they were more than willing after their first suspicions were allayed that they were merely being errand boys. Many of the teachers knew vaguely what they wanted, but didn't know how to translate it into wood and paint and simple machinery. Many of the pupils needed only suggestions to produce cartoons and sketches and other graphic materials. It was planning *with* pupils, not *for* them that was the highlight of the whole project."

"It sounds like a patent medicine ad, Walt. Didn't you have even a few minor slip-ups?"

"Of course we did. These are people I'm talking about. At first the most enthusiastic went all-out for visual teaching and neglected everything else. Or they would have so many charts and specimens and posters and what-not, that the rooms looked like the Old Curiosity Shop. Or they would

work so hard on an elaborate project like a diorama that they couldn't bear to part with it and left it up long after it had any relevance to the work. Some wanted to use any film anybody put out because they thought a film was the magic way to learning. A few still think that four memorized oral reports given behind a table constitute a dramatized discussion. Sure we made mistakes. But we pooled our ideas and blunders and worked our problems through. We're still learning."

"Tell me some more, Walt; this is real grass roots experimentation."

"I've talked enough for one day. Come on. Let's have a look around the building. Don't expect anything spectacular. I'm not concerned with sleight-of-hand tricks. These teachers are just using appropriate techniques to make the daily learning experience go beyond verbalization."

"That's what I dropped in for, a look around."

As they went down the hall Walt said, "First I want you to see Miss Price's social science class set up for boys and girls who don't fit into college prep history. She and the class plan their own course. Even the pupils who resisted the new class because they were convinced 'they couldn't do history' are taking a new lease on life."

As they took seats at the back of the room, Miss Price was saying, "It's time for the headline map summary."

A boy stepped to a bulletin board where there were a world map, a map of the state, and a map of Franklin.

"The committee chose the following headlines to put on the map today. Tom, you thumbtack them on while I point out the places. Here in Palestine there was a big story about the United Nations. There was political trouble in Paris, France. The government in Argentina clamped down on the newspapers because they criticized

the government. Here in the United States the big stories were in Washington, D. C., Los Angeles, and Philadelphia. In the state the stories were all about the new highways. The school bond issue is the local story. If you want to read the whole stories, they're on the clipping board."

When he had finished, suggestions were made by the class about stories that might have been added. Time was allowed before the bell for those who wanted to read the clippings or the full copies of newspapers available on a table.

After class Walter Mitchell asked Miss Price to explain the purpose of this map device to Dr. Niles.

"Many of these boys and girls come from families where no newspaper is taken. Some would read only the sports page and comics. They aren't readers by choice. When they serve their week on the headline committee they must read the papers pretty carefully. The others read to check on the committee. They've gained a reputation in school for being experts on the news. They needed that kind of favorable status. It's a simple thing, but it's meant a lot."

"Thanks, Miss Price. Before we go have you anything else interesting to show Dr. Miles? He's seeing our audio-visual program in action."

"All I need is an excuse to show off the things this class is doing. Look at these sketches. They're to be our visual aids for an assembly program on prejudice versus understanding. The title is, 'If you believe this, you're cheating yourself.'"

The sketches depicted popular prejudices about race, nationality, and religion.

"These are very good, but how are you going to use them in an auditorium?"

"We'll project them on the screen

and trace them on large sheets of paper. They're to be used as 'starters' for the talks and dialogues. Now that I've gotten over my original fear of 'the machines,' I find many ways to liven up activities. Will you be here for the program on Tuesday, Dr. Miles?"

"No, I'm sorry I won't see the performance. I hope the script is as simple and dramatic as the drawings."

"We worked with the drama teacher and a man from the radio station. No orations."

As they went down the hall to their next spot for observation Dr. Miles observed, "My guess is that Miss Price is one of the spark plugs in the social science program."

"Yes, and my only fear is that she won't stay with us long. The teachers' college has an eye on her."

They went into room 119, where Bill Morgan (ex-sergeant) was teaching a physics class.

A student was speaking, "I thought that was a swell film. The school ought to buy it. I know a lot more about different kinds of engines than I did before."

"Run it again, Mr. Morgan, will you please?", requested a girl. "There were several things in the picture I didn't quite understand."

The film was run again, and stopped several times at points where the class raised questions. Then after answering a number of questions asked by members of the class, the teacher helped them summarize the main points shown in the film.

"Now," said the teacher, "we'd better check on the last details of the trip to the factory. Don, pass these mimeographed check lists of observation points we worked out. Keep those in your notebooks. How about the report from the lunch committee?"

After the various last-minute adjustments had been made, Bill Morgan

raised a window shade which had hidden an assignment on the board until he was ready for it, and the class began work. While they were working, two boys came in quietly, took their assignments for audio-visual equipment duty from a file on the desk, conferred with Bill, and went to the equipment room to prepare for their next period's job.

As the visitors left, Paul Miles asked, "Tell me, Walt, does he operate at that speed all the time?"

"Almost. He can think up more ways to make physics comprehensible than I thought possible. You should have seen them starting simple machines by taking a lawnmower apart."

"What else do you want me to see. My time is running short."

"Let's go see Dora Laughlin. She teaches English and American literature in what she calls the old-fashioned way. But her idea of academic tradition has certainly changed since I was a boy and studying the classics. Even without special equipment she always used puppets and original illustrations, dramatizations, and all kinds of visual techniques. Now that we have a good opaque projector and playback, she's done really wonderful things with postcards from her travels, illustrations from her own collections of books and recordings of famous actors doing plays and poetry. She's experimenting now, with misgivings, on helping the pupils become more discerning about out-of-school movies and radio programs. It's a departure from her course, but she's beginning to do a mighty good job of bringing literature to a level that pupils can understand, whose home backgrounds haven't offered much formal culture."

When they came to Miss Laughlin's door, there was a sign, "Listening. Please do not disturb."

"Well that's that. Maybe we can see one of the commercial classes at work on sales slips and other business materials provided by local firms. They always kicked that our classes were remote from actual business conditions. So we had a meeting and persuaded them to help us. Now we project some of the application blanks and so forth on the screen to point our information they all should have. Then the pupils actually run the book store—under supervision, of course. It's given them more of an interest in the business world. They requested a Better Business unit with exhibits and bulletin boards of phony advertisements, fly-by-night loan offers, and other sucker-bait. The material was so good that a class worked out an illustrated lecture and gave it at a business man's luncheon. It went over big from reports I had."

"I'm afraid I won't have time to do any more visiting. One of the reasons I'm looking around is that I'm talent scouting for a consultant in audio-visual for the summer workshop. I think Bill Morgan is the man with the philosophy and the 'know-how' who can help us best this summer."

"I'm glad now you didn't tell me at first. I didn't want to slant the visit Bill's way, but I'm glad you want him. He can do a good job. Do you want to talk to him now?"

"No I'll write a letter tomorrow or the next day. I'm due in an hour at Midford for some more visiting."

"Sure you haven't time to see the giant-sized props the shop teachers use in a safety lecture called 'How to Live with the Lathe'?"

"I haven't time to see an animated Sphinx. You can tell me all about it at the University next month. You're on the list of consultants for a conference of administrators and teachers on the use of audio-visual methods. For

two days you can have a lot of fun. Want to do it?"

"I can't resist. Well, I'm glad you came to Franklin today. We haven't all the answers, but we're doing less abstract work than we did a few years ago."

"You've got a very satisfying program. Your audio-visual ideas go beyond purchasing equipment. It takes more than that, Walt, it's a whole point of view."

"Thanks, Paul, See you at the conference if not sooner."

"Goodbye. I'll write to Bill Morgan soon. Don't say anything to him yet."

As Walt Mitchell waved goodbye, he began to think about what he would do at the conference. Now if they could only take some pupils over to do the radio program that had influenced the board to install a small studio. Or some photographs of that shop safety equipment. Or maybe . . .

Meanwhile he decided to have his lunch.

The results of experimental psychology, as well as common observation, indicate that learning, to be effective, must be based on meaningful experiences. Hence, the good teacher attempts to provide a large variety of such experiences.

The foregoing description of a hypothetical school illustrates a few ways in which a teacher or a school can provide meaningful learning experiences for pupils. In recent years there has been increased acceptance by school administrators, teachers, and the public of the fact that learning in school can be promoted very effectively by increased use of motion pictures, lantern slides, field trips, radio programs, and similar materials. However, there are certain difficulties which in many cases greatly reduce the extent to which these audio-visual materials

are used. Some of the most important of these problems are these:

1. How can a teacher most effectively utilize common audio-visual materials in classroom instruction?
2. How can a teacher best help pupils to develop the ability to discriminate between good and poor radio programs or motion pictures?
3. What type of organization and what facilities should school administrators provide so that capable teachers will be able to use audio-visual materials effectively?
4. What type of in-service education do teachers need to enable them to use audio-visual materials effectively?
5. How can the audio-visual program be evaluated?
6. Where can audio-visual materials and equipment be obtained?
7. Where can teachers get information concerning audio-visual materials and programs?

In subsequent chapters, an attempt is made to answer, at least in part, these and similar questions.

CHAPTER II

THE TEACHER'S UTILIZATION OF AUDIO-VISUAL INSTRUCTIONAL MATERIALS

The past few years have witnessed spectacular growth in the use of instructional motion pictures. The introduction of the film strip, the feasibility of using radio through transcriptions and recordings, and the rebirth of interest in slides, have manifested themselves with considerable fanfare. At the same time the notion has unfortunately arisen that audio-visual aids are something brand new. The implication seems to be that teachers must exercise unique means of utiliza-

tion in order to realize the instructional values for which these aids were developed.

The terminology that has been used, such as "Visual Education" or "Audio-Visual Education," has tended to support the belief on the part of teachers that a considerable hiatus existed between "Visual Education" and plain "Education." It is only recently that curriculum-wise protagonists of things audio-visual have begun to speak of "Audio-Visual Instructional Materials" and brought to general attention the fact that these materials extend quite beyond the limits of projected or recorded aids and include almost all kinds of instructional materials. Actually there are few teachers who have not utilized audio-visual instructional materials unnumbered times during the course of their teaching careers.

Teacher familiarity with a wide range of audio-visual materials becomes much more apparent when it is realized that maps and charts, globes, sand tables, pictures in books-magazines-displays, and all the other instructional aids that the eye sees, the ear hears, or that impinge on the other senses are truly audio-visual aids to instruction. Even the time-honored, and often abused, blackboard is included in the comprehensive field of audio-visual instructional materials.

And so, what is new about using audio-visual aids? They do have their newer forms which require that a few mechanical skills be acquired, and that is all. Essentially, audio-visual instructional materials are the same aids that teachers have been using, or mis-using, for generations, according to their professional preparation, the administrative and supervisory provisions for their use, and the teacher's own particular interest and initiative in relating their use to the curriculum in general and the immediate lessons at hand.

No teacher, of course, uses any instructional aid for itself alone; i.e. theoretically not. He has objectives for its use—objectives that stem from the total educational philosophy of his school or system; objectives that proceed from the general to the particular, from course of study for the year to unit for this month, to individualized lesson for today. Today some one teaching purpose or set of purposes is to be achieved. What aids does the teacher employ to get these ideas across in the most effective, concrete fashion? How does he select them? How does he use them? Let's see . . .

There's nothing very mysterious about selecting appropriate instructional materials. Unless a text book is selected for the teacher by the state or the local school board, the teacher proceeds to select one. Pretty red covers aren't especially important, nor does the teacher pay too much attention to the long and impressive titles of the authors. The content is what counts. Does the text have a point of view compatible with the teacher's own philosophy, are things emphasized there which the teacher wishes to stress, is the grade level of the language appropriate? The teacher reads, or at least scans, the content. In selecting a map, the teacher is more concerned with whether the map is up-to-date and accurate than with the fact that New York is light green and Washington D. C. is marked by an attractive star. But, let's get some of these concerns down a little more objectively:

1. Is the audio-visual aid authentic in its content or appearance?
2. Is it up-to-date?
3. Do its objectives fit the lesson at hand?
4. Is it understandable to the grade level in which it is to be used?
5. Is it within the interest area of the students or related to it?

6. Can it be secured at a time when it fits in well with the lesson?
7. Is it reasonably economical?
8. Is there any danger involved in its utilization?

The majority of these questions can be answered by examining the material carefully before its use is seriously considered. Teachers sometimes say that they are baffled by how to use the motion picture or strip film, transcriptions, recordings, or other of the newer aids. Usually when this state of affairs exists it is because the teachers have not previewed or auditioned the aid in advance of use. How could they expect to have any control over the learning situation? And this brings us to one very important generalization about the use of any kind of instructional materials: *The teacher must know his materials.*

Another important generalization is to *use the audio-visual instructional material at the time it fits the lesson.* Not next week or next month, or three weeks ago, but this week, today, now, when it fits the lesson and can be well integrated with it.

Purposes for using instructional materials must be clear in the mind of the teacher so that he may transmit these purposes to the class in advance of use and keep them constantly in mind during the use of any aid and following such use in subsequent discussions and related activities. A certain teacher used to tell a variety of interesting and most entertaining stories, but his pupils were seldom sure whether the stories were to drive home a related point in the lesson, or merely to divert them for a moment from the strenuous mental exercise of Trig. His pupils still remember some of the stories!

Repeat the use of the aid as many times as is necessary. The teacher should never be afraid to use certain instructional materials more than once if

further use will result in additional important learning. The majority of our instructional films go so rapidly that a re-showing is practically imperative. Teachers make no bones about having a class review the text book or point out places on a map or parts of a model again and again. Just so with these other aids, too.

After the lesson or unit is completed, or during the progress thereof, *the teacher evaluates what has or is taking place* and the values which have been achieved. Did this method this time put over the ideas and concepts he originally had in mind? If it didn't, where was the weak spot? Was the aid really appropriate to the purposes of the lesson, the age level of the pupils, or could it have been done better with something different? Reviewing these various concerns by the teacher is the only intelligent way to establish a basis for selecting future instructional materials, whether audio-visual or otherwise.

Selection of a particular aid for classroom use is also the product of a series of compromises: compromises with what constitutes the ideal or most concrete aid, compromises with the class schedule of the school—especially in the case of radio—compromises with the school funds for instructional materials, and with the facilities at hand.

To make clear the relationships between the various audio-visual instructional materials and to contrast their degrees of reality, some authorities choose to line up the aids along an imaginary scale which proceeds from the concrete to the abstract, or vice versa. It is also fashionable to start at the bottom of a pyramid and work up to the abstract, or peer through a glass darkly and gradually see the light. In any event, at the most concrete end of this continuum, pyramid, or what have you, is placed actual

"work" experience in the area about which the pupils are to learn. The best way to learn about farm life would be to work on a farm *with* a good teacher. Somewhat less concrete is the field trip or school journey. Viewing, hearing, smelling, tasting, and touching objects or living things in their natural settings often presents the most realistic learning situation—one which all teachers would choose, were it not for complicating factors. These factors include such items as distance from the school, cost and hazards of transportation, interruption of class schedules, and exceeding the optimum number of students that may be handled effectively in a particular situation. Other deterrents to good learning situations in the case of the field trip are that frequently too many other students get between a student and the lesson material, or the item to be seen is hidden behind several tons of iron or steel, or is so small that it cannot be seen anyway. Hence, in spite of all the advantages of a field trip, the instructional materials can often be presented better for group study through vicarious means, such as the motion picture or film strips.

Next to the Field Trip, in its purer forms, many theorists place the motion picture, as the most realistic vicarious experience. The motion picture is undeniably valuable in presenting a variety of ideas or concepts that involve motion. Time-lapse photography is utilized to show processes in nature that would otherwise take days, weeks, or months. In a sense all motion pictures have the element of time-lapse about them, since time is squeezed out of the situation and events are fastened together in a sequence which has no relationship necessarily to their original order of time or photography. Animation is another notable

contribution of the motion picture, presenting operations and activities not normally visible to the naked eye. slow motion photography makes understandable action which is much beyond the capacity of the eye to see. And, it must not be forgotten that the motion picture is able to tell a story, complete, factual, and integrated and almost as lifelike as the real thing itself.

Somewhere between the picture that moves and talks and the picture that just sits still—whether in a slide, a film strip, a picture projected in a reflectoscope, pasted about the room in exhibits, or lying placidly in a textbook—are to be found the sound slide film and the stereograph. Both of these aids assist in bridging the perceptual gap between still and motion pictures. The sound slide film retains the naturalness of the human voice and other familiar sounds while presenting a still, somewhat lifeless picture. The stereograph is a still picture, but has depth, a third-dimensional quality which makes it more real, in a sense, than the motion picture. As each ounce of realism is squeezed out of the instructional material at hand, it is most important that relationships are maintained between more realistic objects which the student has come to understand and be familiar with. These two aids assist in getting the student up one rung of the ladder of realism.

And then, there are the various manifestations of the still picture alluded to. In using all of these aids, the teacher applies the same criteria in selection and the same general pattern of utilization.

Models, exhibits, and diagrams, although considered by some to be more realistic than pictures, are usually placed next on the abstract-concrete continuum, followed by charts, graphs, and maps. When the last named three-

some is encountered, the teacher must really begin to take himself in hand and realize that he is getting his students into the realm of the abstract. Generally speaking, these aids have little in common with the familiar objects of every day life. The realism has been eliminated in favor of simplification and of enabling the student to deal with a variety of concrete objects summed up in small signs or irregular lines. The teacher must be certain that the student knows what each little sign stands for before going on with lessons which involve its use extensively. This does not mean mere memorization, but a real, vital experience, vicarious or otherwise, tucked away in the student's mind which can be linked up with the little sign on a moment's notice.

Signs and words are man's most precarious possessions, if he knows what they mean. But glibly reciting their meanings to his teacher or his friends without knowing their real meaning—what we have come to call verbalism—is a sorry reflection on some of our processes of education which pour on the knowledge and never rub it in.

It must be remembered that in the use of audio-visual aids in education one may encounter these perils of verbalism very quickly if basic knowledge does not give meaning to what the ear hears. Given a sure knowledge of the words and phrases and sounds of the realm, auditory aids are some of our most useful tools. The radio program purveys knowledge to many thousands of persons and the modern development of the transcription and the wire recorder with which to fix these words, sounds, and music for re-creation at any time have immeasurably increased their utility in the educative process.

And with audio-aids, as with all other instructional materials, the

teacher applies the criteria of selection listed, auditions the material in advance of class use, has specific purposes for using each aid, uses it at a time when it fits the lesson, plays it back as many times as necessary, and evaluates the outcomes.

Let's put this all down in a nutshell, now, and go on to the next chapter. Remember these important concerns in the use of audio-visual or other instructional materials:

1. The teacher must know his materials.
 - a. Is the material authentic in content or appearance?
 - b. Is it up-to-date?
 - c. Does it contribute to the objectives of the lesson at hand?
 - d. Is it understandable to the grade level in which it is to be used?
 - e. Is it within the interest area of the students or related to it?
 - f. Can it be secured at a time when it fits in well with the lesson?
 - g. Is it reasonably economical?
2. The teacher uses the material at the time it fits the lesson.
3. Purposes for using the instructional material must be clear in the mind of the teacher and the pupils before, during, and after utilization.
4. The aid should be used as many times as instructional needs dictate.
5. Evaluation of outcomes with the use of the aid should always take place as a guide to student progress and the effectiveness of the particular aid for future use.

Mysterious? Involved? Magical? Everyone has been using some kind of instructional materials for a long time. These aids, some of them, just look a little different. That's all.

CHAPTER III

DEVELOPING DISCRIMINATION WITH REGARD TO MASS MEDIA

The Need for Discrimination

The high school student of today lives in a world of motion pictures, radio programs, picture magazines, juke boxes, newspapers, and billboards. He listens to the radio more than two hours each day; goes to the movies once a week; reads comic strips, sports, features, headlines, and occasional news stories; thumbs through *Life* and *Look*; reads portions of *Reader's Digest*; listens to juke boxes, dance bands and home record players; and is constantly exposed to billboards, store windows, display ads, radio commercials and gimmicks. In spite of all this bewildering bombardment, essentially mechanical and impersonal, the home, the church, and the school do little or nothing to help him make sense out of the confusion. The adolescent is, typically, over-stimulated by the continuous appeals to hunger, thirst, sex, snobbery, and insecurity. He is confused by the conflicting standards represented in his immediate clique and its rigid code because, fundamentally, he is lonely, insecure, frightened and frustrated by an essentially impersonal chaotic world which constantly beats in upon him.

The same mechanical advances which make possible the enrichment of teaching through radio programs, motion pictures, field trips, film slides and models, have filled the out-of-school life of the students with an array of glittering and exciting experiences pitched to the lowest common denominator of mass taste and mirroring the conflicting standards and mores of a developing civilization. Education for living cannot ignore this

situation. Indeed the school becomes increasingly unrealistic and ineffective as the gap widens between traditional content and method and everyday living.

In another sense, too, the school dare not ignore the mass media—motion pictures, radio, and the press. The very survival of western civilization is dependent upon the decisions which the American people make in these crucial post-war years. These decisions are influenced and often determined by the adequacy and relevancy of the information which radio, press and movies supply. Unless citizens become discriminating with regard to these media, they may too easily be swayed by sensationalism and by the deliberate manipulations of selfish interests. The high school must do its part in developing critical discrimination with regard to these primary sources of information on public issues.

What is Discrimination?

Discrimination is the ability to discern differences, to separate the "good" and the "bad," to make judgments on the basis of standard. It implies that the individual approaches an experience positively, that he reacts to it, and evaluates it. Those who lack discrimination are what Edgar Dale calls "sponge-minded." They soak up experiences, they are wishy-washy; their views are determined by what they last read, heard, or saw.

There are, of course, degrees of discrimination. The biased and bigoted person has a rough sort of discrimination. He accepts that which confirms his prejudice; he rejects everything that threatens or conflicts with his preconceptions. The truly discriminating person, however, reacts in terms of standards which he has carefully thought through. Indeed his standards themselves are constantly being re-

fined. Each new experience not only is judged by the standards, but in turn the experience throws new light upon the standards themselves.

How Is Discrimination Developed?

Discrimination is developed only through exposure to a variety of experiences of differing quality. In any field the student must sample widely. While it is true that the boy who has heard nothing but jazz cannot be discriminating in music, it is equally true that the child exposed only to the classics also has little basis for "discerning differences." Similarly, the adolescent must be exposed, in or out of school, to a great variety of radio programs, motion pictures, newspapers, advertisements, music, books, pictures, and so on. If he lives in a restricted, well-groomed suburb he needs to experience the slums, the small town, the farm. If his contacts are confined only to members of his own race, nationality, class, and religious grouping, then he must have the opportunity to associate with those of differing background. True discrimination grows from a breadth of experience.

But variety of experiences does not automatically develop critical taste. The various experiences must be compared, evaluated, and interpreted. They must be intellectualized. The young person today is exposed to a much wider assortment of happenings than were the boys and girls of previous generations. Yet they are not necessarily more discriminating. Indeed many of them are more confused, more mixed up, less sure of their values than their predecessors.

Somewhere the adolescent must acquire the habit and disposition to reflect upon these varied experiences. He must compare them with his own developing standards and values and with each other. This implies that

he must be taught the techniques of discrimination and must be given the time and opportunity to practice them. Only thus can he learn to make sense out of the heterogeneous mass of radio programs, motion pictures, newspapers, magazines, and firsthand contacts to which he is so constantly exposed.

The Responsibility of All Teachers

The discriminating approach to the experiences of living must become a responsibility of all teachers. It must not be compartmentalized. Of what value is it to develop taste in art if the student is uncritically accepting his social viewpoints from a radio commentator? Even if a girl has learned tasteful grooming in home economics, she does not necessarily discern the differences between cheap fiction and more enduring literature. Only when the adolescent is constantly exposed to varied experiences accompanied by discussion, analysis and judgment, can we expect discrimination to become generalized.

The teachers of English, the social studies, and music have, perhaps, the major responsibility with regard to the mass media. Radio, motion pictures and the press chiefly present entertainment, by drama or music, or information, by news and commentary. Therefore a special study of these media is imperative in English, social studies, and music.

The English teacher will constantly bring into class discussion the radio dramas and the motion pictures to which the students have been exposed. Written literature will be compared with oral and visual presentations. He will recognize that it is far more important to develop standards for judging radio programs and movies which the young people experience in abundance, than to develop criteria for

literature which they read seldom if ever outside of a school. At least once in his high school career, the student will systematically examine radio, movies and the press in a semester-long study. He will try to discover what makes them tick, he will examine his own patterns of preference, he will develop conscious standards for judging their performance. In short, the English teacher will take these media seriously and approach them as living contemporary forms of English expression.

The social studies teacher, likewise will constantly bring these media into the learning activities. News stories and broadcasts, commentators and columnists, round tables and forums become lively sources of background for civics and problems of democracy. In addition, history is enlivened and made meaningful by reference to contemporary problems for which radio and the press furnish abundant material. Historical drama as well as the so-called documentary, whether by film or radio, can frequently throw light upon class problems.

Here, again, if discrimination is to be developed, there must be constant comparison, analysis, and judgment. This frequently leads to a critical study of these media—their control, their authenticity, their appeal. Many teachers have devoted a unit to a critical study of news commentators or news columnists with the development of criteria which can be used in their evaluation. Others have devoted a unit to the study of advertising on radio and in the press—its appeals, its reliability, its social function. Here again, standards can be developed which have real usefulness in daily living.

Probably the responsibility of the music teacher in relation to radio is so clear as to need little more than men-

tion. The great bulk of exposure to music today is by radio and record. How taste in music could be developed without continuous reference to these media, it is impossible to imagine. Great performance of all types of music is now available to everyone through radio and records and the development of discrimination becomes more important than ever before. Obviously the music teacher's responsibility is chiefly with reference to these media.

The home economics teacher must likewise be concerned with the consumer's relation to advertising as well as to the periodicals and broadcasts which are devoted to home-making. She, too, will be conscious of the need to analyze, compare, and evaluate these sources of experience, so that her students may become discriminating home-makers.

In similar fashion one could analyze the other subjects in the high school curriculum and find points at which each is affected by today's mass media. Each field implies more responsibility for the development of taste and discrimination on the part of young people.

Specific Techniques

In order to develop discrimination, the following techniques may be employed by the teacher:

1. Develop your own background with regard to radio, motion pictures and the press. Listen to all types and kinds of radio programs, even those you detest. Go to a lot of movies, good, bad and indifferent. Become familiar with several newspapers and a variety of magazines, especially those your students read.
2. Learn all you can from visits, reading, or interviews, about the radio, motion picture, and publishing industries. Who controls

- them? What are their problems? What is the place of the businessman and the creative artist in each? What social problems do they create? What influence have they on public opinion?
3. Learn all you can about the out-of-school exposure of your students to these media. Make a survey of your classes. How much do they listen to the radio? To what do they listen? How often do they go to the movies? What kinds of movies do they like? What do they read? How much? Do they have a phonograph or record player? Do they listen to juke boxes? How much?
 4. In the light of the kinds of experiences the boys and girls are having outside of school, plan to expose them to other types and qualities of experience. If they listen only to comedy shows and dance bands, get them to listen and report upon such first-rate drama as is represented by the Theater Guild or the Ford Theater. Suggest that they see some foreign films. Bring to class magazines like *Time*, *Newsweek*, *Harpers*, *Reader's Digest*, *Survey Graphic*. Have them compare Edward R. Murrow and Fulton Lewis.
 5. Provide regular opportunity for students to relate, discuss, and analyze their varied experiences in and out of school. Particularly lead them to compare real life experiences with fictionized representations in movies or radio programs. Seldom stop at the point of merely describing an experience; encourage them to evaluate it. How does it fit into their concepts of true-to-life-ness, or morality, or appropriateness? Try to sensitize them to the conflicts in values which are inherent in today's living as illustrated by their own experiences—real and vicarious.
 6. Encourage your classes to raise questions about the dependability, the authenticity, of their sources of information. Can they believe what they hear on the radio, see at the movies, read in the paper? How can they find out what to accept as true? Explore the background of the mass medium industries. Who controls? What safeguards are there? What standards of content and craftsmanship are employed?
 7. When using a film, a radio program, a recording, a magazine article or a news story in the classroom, take advantage of the situation as an opportunity to discuss general standards for the particular medium. How does an instructional film differ from a theatrical film? Does the school broadcast resemble an entertainment program? How is interest secured? What responsibility have the producers to do an educational job with the general public? What makes an effective news story? Radio program? Motion picture?
 8. Acquaint students with intelligent sources of information regarding mass media: motion picture reviews, radio columns, trade magazines, pamphlets and bulletins, books.
 9. Make students aware of their dependence upon these media and the extent of influence which the media exert upon them. Have students study the extent to which their teen-age conversation is affected by radio and movies; the degree to which their dress is influenced by movies and comic

strips. Have reports of the influence of advertising upon their wants and buying habits. Discuss the development of hit tunes by means of "song-plugging" by radio, juke box and films.

Taste cannot be compelled; it grows. The teacher should never attempt to impose his own standards of artistry or of integrity upon students. They must develop their own in terms of their unique needs, interests, and experiences. This is not to imply, however, that the teacher simply stands aside to let nature take its course. On the contrary it is his responsibility to arrange the conditions under which discrimination develops. He must expose the adolescent to new types of experience. He must give time for and encouragement to the discussion of these experiences. He must point up the conflicts and confusions which make the formulation of standards necessary. He can call attention to the varied likes and dislikes within the group which need further clarification. In short, he can be a true teacher who stimulates learning. For taste and discrimination, because they involve basic values, are at the center of the educational process. They give meaning and direction to living.

CHAPTER IV

FACILITATING THE USE BY THE TEACHER OF AUDIO-VISUAL MATERIALS

The ultimate goal of the classroom teacher is to provide a background of rich, varied, and meaningful experiences for the students. The more vivid and realistic these experiences, the more pleasant the learning situation will be and the longer the information will be retained. Careful selection and proper utilization of audio-visual materials will enable the instructor more

nearly to attain this desired goal. To achieve this learning situation, the school administrator, the audio-visual director, and the classroom teachers need to work together.

A good educational program is one in which the teacher uses all types of instructional materials from textbooks and blackboards to field trips, models, and radio programs. Each is used as it contributes toward teaching goals.

To have the various audio-visual aids at hand when needed by the teacher and to assist him in planning the most effective means of presentation are two important duties of the audio-visual director. Efficient administration of the audio-visual department is essential in promoting more extensive use of these materials in the classroom.

Selecting the Audio-Visual Director

The very nature of the audio-visual program is such that it requires a considerable degree of centralization. Regardless of the size of the school, whether a large city system or a small school employing only a few teachers, the problems of administration are similar. Naturally, the larger the school, the more time the audio-visual director will need to give to the program. In the smaller schools, possibly an hour or so per day will be sufficient. Projectors, films, screens, play-back machines, recordings, transcriptions, slides, and other materials and equipment must be kept at a convenient center. The teacher will not use these materials unless they are on hand when needed and can be had without too much "red tape."

The audio-visual director should possess many qualities.

- A. He should possess initiative, courage, and vision.
- B. He should possess considerable administrative ability.

- C. He should have general understanding of the several different types of aids, their scope and function.
- D. He should be familiar with the techniques and procedures of utilizing audio-visual aids.
- E. He should have a general knowledge of the subject matter of the various grades from primary through high school.
- F. He should know *children* and *how they learn*.
- G. He should be able to suggest the audio-visual aids which contribute to the teacher's educational objectives.
- H. He should be qualified to hold a place on the curriculum committee.
- I. He should possess a certain amount of mechanical skill, for he will be called upon to make minor adjustments and repairs of equipment.
- J. The director should be able to interpret the audio-visual program not only to the teachers but to the public as well.

To find a person with as many as possible of these qualifications is the task of the school administration.

Many teacher training institutions are now offering courses and workshops in audio-visual education. Participation in such courses is an important part of the training of the audio-visual director.

Selecting the Audio-Visual Committee

The director cannot carry out the manifold duties of his department without the assistance of an energetic audio-visual committee. The members should be selected so that all areas and levels of instruction are represented. The chief function of this group is to work with the director in coordinating and developing administrative and

teaching procedures in which adequate use is made of audio-visual aids.

The Administrative and Supervisory Duties of the Audio-Visual Director

As mentioned above, the audio-visual director should have considerable administrative ability. A brief study of the more important duties listed below will substantiate this need. Furthermore, careful study of these numerous duties shows why an active audio-visual committee is needed to assist the director in administering the audio-visual program.

- A. Prepare the Budget for the Audio-Visual Center.

This is one of the major administrative duties of the director. The budget must provide for the operating expense of the audio-visual department and for the number and types of audio-visual materials most needed by each department. Both long and short range budget making is desirable because of the usual financial limitations.

- B. Supervise the Staff of the Audio-Visual Center.

The success of the audio-visual center is measured in terms of the actual contribution to teaching which is made by the aids and services provided. Efficient operation of the department guarantees a maximum assistance to each teacher.

Whether in the small school or in the large city system, a suitable place will have to be selected for housing the audio-visual materials.

In the small schools the principal's office or a small store room may serve adequately. In a large school one or more centrally located rooms is needed.

One of the major functions of the audio-visual staff is to see that equipment and materials requisitioned are in the classroom at the time they are needed. Furthermore, the equipment must be kept in good running order and the material in usable condition. Equipment not in good running order and worn, torn, or broken materials will discourage their future use.

Every piece of operating equipment should be inspected at regular periods. Materials such as films and film strips should be checked each time they are used so that necessary repairs can be made.

The staff must also order requested rented materials and see that these materials are at the proper place at the time scheduled.

There are numerous records to be kept, so that materials and equipment can be located quickly. Forms and records for checking materials out of the center should be short, simple, and yet complete.

C. Work with the Curriculum Committee.

The director should have a permanent place on the curriculum committee. He should see that courses of study as well as suggested learning activities include adequate mention of the various audio-visual materials. He should also be able to provide any information requested by the members of this committee pertaining to audio-visual aids, and should see that aids needed to implement the course of study are actually made available. Most of all, his task is to educate the other members of the com-

mittee in the significance of audio-visual materials.

D. Serve on the Audio-Visual Committee.

Some schools have a committee to formulate the policy of the audio-visual department and to select the desired aids. If such a committee is used, the director should have a place on it.

E. Assist the Teachers and Students in Producing Certain Aids.

Numerous aids that can be made by the instructors and students can be used to advantage for instructional purposes. Such aids include numerous types of handmade slides, micro slides, recordings of all types, etc. The director, because of his vast experience in previewing and evaluating these materials, should be able to counsel the individual or group interested in their production.

F. Record Educational Radio Broadcasts.

The major problem in using the radio program in the classroom is to have the program when needed. Many excellent programs are not used because they are not on the air during the period the class meets or are scheduled during out-of-school hours. By providing a recording service, the director can make such programs available when needed, and they can be used as often as necessary.

G. Assist the Committee in Planning and Coordinating the Radio Broadcasts.

The director should work with local and regional radio stations in planning and scheduling radio broadcasts intended for use in the schools. With the assistance of teacher committees, he can ad-

vise broadcasters as to types of programs needed to implement the school curriculum. In addition to programs for classroom use, some effort should be made to inform teachers of other broadcasts of a general nature that may aid them in teaching.

H. Plan Demonstrations for the Faculty.

Many excellent classroom materials lose much of their significance when presented to the faculty as a group. Encouraging faculty members to visit certain classes by giving them a schedule showing when certain aids are to be used will give the members of the staff an opportunity to see these materials used under actual classroom conditions. Special student demonstrations may also be arranged.

I. Participate in Conferences and Audio-Visual Exhibits.

The audio-visual director should attend conferences and exhibits in order that he may be well informed on new materials and equipment as they become available.

J. Prepare the Training Program for the Faculty.

An in-service training program is needed in order to insure adequate and proper use of audio-visual aids. Specific suggestions for such a program are given elsewhere in this bulletin.

K. Preview, Audit, and Evaluate Materials.

The director should work with other members of the staff in selecting suitable materials. He, himself, will need to preview and audit vast quantities of them. Valuable information relative to the possible areas and methods of use will be obtained as these

materials are previewed with small groups of teachers.

There are other duties that the director may be called upon to perform; such as conducting audio-visual conferences or work shops, and giving lectures or demonstrations to teacher groups, clubs, etc.

The Audio-Visual Center

One of the first duties of the audio-visual director will be to work with the school administrator in selecting a suitable space for the audio-visual center.

The audio-visual headquarters should be centrally located, and whether one large room or a series of rooms, it should be allotted sufficient space for (1) the library, (2) the office, (3) the preview room and laboratory, (4) the work room, and (5) the storage room.

A. The Library.

The library will play a very important part in this program. The materials selected for the library should be chosen to meet the wide range of interests of the faculty.

1. Books.

Books covering every phase of audio-visual materials should be in this library. For selected titles, see bibliography.

2. Magazines and bulletins.

In addition to the magazines and bulletins devoted exclusively to audio-visual instruction (see bibliography) the director should include those that carry special articles on this subject.

3. Directories and catalogs.

Few institutions own sufficient materials to carry on a well balanced audio-visual program. Consequently, it is necessary to rent materials, such as slides, motion picture films, transcriptions, etc. The teachers should

- have access to catalogs and other sources in order to find desired materials.
4. Bulletin board.
Many producers of audio-visual materials prepare attractive folders describing their materials, and sometimes provide study guides and other instructional helps. Thus, the bulletin board not only makes an attractive display but serves as a means of keeping the staff informed of new materials as they become available.
 5. Display center.
As the program develops, many classes when working on a project will prepare attractive materials, develop a set of slides, a radio program, etc. A display of these materials will not only encourage other teachers to use more visual aids, but will be valuable in helping them correlate the various instructional materials.
 6. Card index.
Every piece of equipment or material circulated by the department should be cataloged on a plan similar to the Dewey Decimal System. This will save the instructors and students considerable time in locating the desired items, or in checking on materials available from the center.
 7. Evaluation index.
Each teacher who uses a set of slides, a record, a motion picture, etc., should fill out a simple evaluation and rating form. These forms should then be filed and made accessible to both students and teachers. Thus when trying to select a record suitable for use in a given situation, the teacher can readily

check on the one in question and note the evaluation by others who have used it. Such a system will in time be of considerable value to the instructors in selecting appropriate materials. The evaluation and rating index will serve as a guide for the audio-visual director and the audio-visual committee in selecting desirable materials to be purchased by the institution.

A person should be able to come to this library and find some information on the particular question he has in mind, whether it is to discover techniques to be employed when using a particular aid, or to find the sources from which a special item can be obtained. These books, bulletins, magazines, etc., will not be used nearly so extensively if stored in the regular library. When one is seeking assistance in this field he consults the audio-visual director.

B. The Office.

Considerable office space may be required to handle the clerical details of the center. Space for files and other office equipment must be provided.

C. The Preview Room and the Laboratory for the In-Service Program.

This room should be large and well equipped. All types of projectors and record players should be set up and ready for use by either the instructors or students. For previewing projected materials, the small booth, the shadow box screen, or special previewing projectors make it possible to have several machines in operation at the same time. An operator should be on hand to assist with the operation of the machines. He should, however, encourage each teacher to operate the machines under his guidance. In

time, the problems of operating equipment will cease to exist.

D. Work Room.

Keeping equipment and materials circulating from the audio-visual center in usable condition involves considerable time and work. A room should be provided where this work can be done. No attempt will be made to enumerate the complete list of items needed in such a room. Tools and work benches, however, will be needed to make minor repairs, and there should be a regular check of machines. Equipment for conditioning, and for rewinding and splicing films is essential, as is a storage space for supplies and repairs. In some institutions it may be desirable to provide equipment for making various kinds of handmade slides. Of course other equipment can be added as needed.

E. The Storage Room.

Storage facilities are necessary not only to keep materials where they can be located readily but to keep them in the best condition. Most aids can be stored in any room. However, for storing motion picture film, the room should not be too hot and should be so located that the direct rays of the sun will not fall on the film.

On the basis of these requirements, considerable time should be given to the selection of the proper location of the audio-visual center.

A well-balanced audio-visual program can enrich the educational offering of every grade level and of every department of the school or school system. When considered from this point of view, the need for selecting a capable director, an active audio-visual committee, and a suitable place for housing the department should be very apparent. To do less is condemning the

audio-visual program to mediocrity or failure.

CHAPTER V

ASSISTING TEACHERS TOWARD IMPROVED USE OF AUDIO- VISUAL MATERIALS

Encouraging the professional growth of a teaching staff is one of the major responsibilities of those charged with managing a modern school, and helping teachers to improve their utilization of audio-visual materials is but one phase of the more general problem of in-service training. Any vital program of in-service training to improve instruction will cause teachers to use a greater variety of instructional materials. However, since many capable teachers have been in service since before the present emphasis on audio-visual materials began there is usually more need for direct help with such materials than in many other areas of the teachers' work.

One essential to adequate professional growth on the part of a teaching staff is the existence of conditions favorable to good teaching. Hence many of the suggestions made elsewhere in this chapter concerning the organization necessary for a successful audio-visual program also have a direct bearing on the effectiveness of the in-service training. Some of the major objectives of the in-service training program are:

1. To enable the teachers to understand and appreciate the basic principles underlying the successful utilization of instructional aids.
2. To help teachers develop an understanding and an appreciation of the place of audio-visual materials in the educational program.
3. To familiarize teachers with the

most effective techniques to be followed in utilizing these materials.

4. To help teachers develop criteria for evaluating these materials and measuring their educational contributions.
5. To familiarize the faculty with the services and facilities of the local audio-visual center.
6. To let the teachers know the procedures to be followed in requesting materials and services from the center.
7. To help the teachers become familiar with the various types of audio-visual aids and the advantages and limitations of each.
8. To familiarize the teachers with the techniques and procedures to be followed when utilizing these tools in the classroom.
9. To help the teachers become acquainted with the various sources from which these materials can be obtained.
10. To provide instruction in the operation of such equipment as is commonly needed in the audio-visual program.

It is important that teachers have or develop the point of view that audio-visual materials are curricular materials just as are books or periodicals, and that a pupil's reaction to the use of audio-visual materials is just as conducive to learning as is his reaction to more traditional materials. (Many teachers still feel that they cannot use audio-visual materials and have time to "teach" too.) In order to use audio-visual materials effectively certain more or less technical skills are desirable; in fact, some are necessary. Among the most important of these technical skills are:

1. Operating of lantern slide, film strip, and opaque projectors.
2. Operating silent and sound motion picture projectors.

3. Learning to place the projector and screen so that all observers will be seated at the correct viewing angle.
4. Operating recording and playback machines of the disk, metal tape, or wire type.
5. Recognizing and compensating for ear defects, when using auditory aids.
6. Making hand-made lantern slides of standard size.
7. Making microscopic slides.
8. Using a camera in making black and white or colored lantern slides.
9. Using guides and directories to locate a specific aid desired.

Various procedures have been found effective in helping teachers attain such objectives and develop such skills as those listed in the preceding paragraphs. In fact, many teachers entering the profession now have had at least a limited amount of experience with a relatively wide range of audio-visual materials. Most colleges that train teachers offer elective or required courses in audio-visual education. In some special methods classes considerable emphasis is placed on the use of audio-visual devices and materials adapted to a specific field of instruction. More and more the regular academic and professional courses in college are utilizing audio-visual materials so that college students, including prospective teachers, have an opportunity to become familiar with such materials from first-hand experience. In some institutions students are expected to have certain contacts with audio-visual materials in connection with student teaching, either as a regular required part of classroom teaching or as special assignments.

One important means by which an experienced teacher can usually increase his proficiency in the use of audio-visual materials is by enrolling

in a college course devoted to this subject. A number of institutions provide such courses for experienced teachers during the summer sessions, on Saturdays, or in the evenings during the regular school year. In addition, many colleges offer work of this type through special conferences, work shops, or other short intensive courses, with or without credit toward an advanced degree. Teachers should be encouraged to take advantage of some of these means of improving their individual abilities in the field of audio-visual education.

Although many opportunities are available to teachers to extend their knowledge of audio-visual materials through the facilities of colleges and universities, there will still be, in the average school, a considerable number of teachers who, for one reason or another, do not choose to take advantage of additional regular college work. Therefore the major part of the in-service training program will probably have to be at the school itself, where the teachers are regularly employed.

As has been pointed out elsewhere, experience has often demonstrated that one of the chief factors in encouraging professional growth of teachers in service is the presence of favorable working conditions which will permit and stimulate teachers to work up toward the limit of their abilities. Another important principle to be followed in an in-service program is that teachers frequently experience more professional growth through participation in cooperative efforts to improve the school's instructional program than by conscious attempts to identify and strengthen their individual professional weaknesses. Hence, instead of concentrating on defects in the instructional techniques of individual teachers the in-service program in audio-visual education should probably emphasize a variety of ways of adding to the school's instructional programs.

Some of the activities which are often helpful in enabling teachers to improve their techniques of using audio-visual materials are:

1. Providing an opportunity for each instructor who desires an opportunity to learn to operate each piece of audio-visual equipment.
2. Helping instructors who are interested in preparing hand-made lantern slides and photographic slides to be used in a specific teaching situation.
3. Planning group discussions, panels, or forums to illustrate how audio-visual materials can facilitate instruction in a given subject area.
4. Arranging demonstrations so that small groups of teachers can see these materials used in actual teaching situations.
5. Helping teachers in preparing or using records, transcriptions, and radio programs.
6. Demonstrating simulated broadcasting by using a sound motion picture projector or a public address system.
7. Demonstrating satisfactory ways of mounting, filing, and indexing flat or un-projected pictures.
8. Helping teachers organize and plan field trips.
9. Providing hand books and bulletins showing what audio-visual materials are available and how they may be obtained.
10. Helping teachers set up tests or other ways of evaluating the educational contribution of various audio-visual materials.
11. Encouraging the previewing of slides, films, and recordings.
12. Allowing teachers to see films and film strips on various phases of teacher education, including audio-visual education.

These are but samples of what the alert superintendent, principal, or director of audio-visual materials can do in helping teachers improve their use of audio-visual materials and thereby make more effective the educational program of the school. Such a program may very well be but one phase of a more general faculty study of ways and means of improving the whole curriculum and the teaching procedures throughout a school or school system. It is usually wise to begin such a program on a small scale by helping teachers individually and in groups as they feel a need for help, and as has already been pointed out, by concentrating on the solution of specific instructional problems rather than on the conscious improvement of individual teachers. Furthermore, the principle of voluntary participation on the part of teachers as a rule leads to greater professional growth than does a wholesale attempt at universal participation before certain members of the staff are ready. However, it should be kept in mind that there is no one best in-service training program in audio-visual education. Very satisfactory results can be expected in any school where the instructional staff is eager to do good teaching and where the administration cooperates in providing the necessary facilities and is extending a high degree of professional leadership.

CHAPTER VI

APPRAISING THE EFFECTIVENESS OF THE AUDIO-VISUAL PROGRAM

Any attempt to appraise an educational program must answer the question: "To what degree is the program achieving its objectives?" Hence, when we try to evaluate the effectiveness with which teachers in a school employ audio-visual instructional materials,

we must first state concretely the purposes to be served by the use of such aids.

The major reason for undertaking any program of instructional improvement is to facilitate pupil learning. The utilization, administration, and production of audio-visual teaching materials must be guided by this over-all objective. In other words, if we are to find out whether or not these materials are utilized effectively, we must eventually determine the contribution they make to the achievement of the instructional objectives of a school or of a particular teacher.

This type of evaluation, focused on the changes that are brought about in pupils, is of fundamental importance. It is inseparable from good teaching at any level. Successful teachers are constantly appraising the worth of the instructional materials they use by observing their effect on boys and girls. To describe what must be done in so comprehensive a program of appraisal is, however, beyond the scope of this brief chapter. What is discussed here are the arrangements that must be made before one can expect such instructional materials to do much to improve pupil learning. There is very widespread agreement among experienced teachers and supervisors about the importance of these arrangements. One way to evaluate an instructional materials program is to find out what provisions are being made to handle them.

Audio-visual instructional materials are used most successfully to bring about desirable changes in pupil learning if (1) some individual is given especial responsibility for the procurement and maintenance of such materials, as well as for in-service staff training in their use; (2) a certain minimum of funds are made available for the regular purchase of equipment and ma-

terials; (3) it is made easy for teachers to learn what materials are available and to examine them critically; (4) audio-visual materials are made conveniently available to teachers at the time they are needed; and (5) an in-service training program is developed which considers all types of instructional materials and provides teachers with help in their selection and utilization.

These requirements imply certain questions to be answered when administrators and teachers want to learn if audio-visual materials are being wisely used in a particular school or school system. The remainder of this chapter elaborates these questions.

1. *Is at least one individual designated to provide leadership?*

The recent *Research Bulletin* of the National Education Association¹ indicates clearly the importance, in any school system, of having one individual to provide leadership in developing an audio-visual instructional materials program. Such leadership pays big dividends in terms of the quality of services provided teachers, the frequency of classroom use of audio-visual instructional materials, the quantity of equipment available, the money spent, and the extent to which school buildings are equipped for the use of the newer types of instructional materials.

At the beginning, when the program is just getting started, the amount of time that this individual can devote to his leadership activities may be limited. He should at least, however, have enough time free so that he can:

(1) serve as a source of informa-

tion about audio-visual instructional materials; (2) save staff time by taking over most of the clerical work involved in procuring materials; (3) help the members of the staff learn more about desirable utilization techniques and procedures; (4) make available source materials, so that the staff can learn what teaching materials are available and where they can be obtained; and (5) arrange for some instruction in the use of necessary apparatus.

In the "full blown" program many other time consuming jobs will need to be done by this leader. His work is primarily that of a curriculum consultant, or supervisor, or materials expert, rather than a mechanic or gadgeteer.

2. *Is money made available for the program?*

The following table taken from the *NEA Research Bulletin* referred to above gives some indication of the per pupil expenditures for audio-visual instruc-

TABLE ONE²

Per Pupil Expenditures on Audio-Visual Education, 1945-46, in Various Groups of City School Systems

Cities with audio-visual departments

Population over 100,000 (46 cities)	\$.32
Population 30,000 to 100,000 (40 cities)	.57
Population 10,000 to 30,000 (36 cities)	.83
Population 5,000 to 10,000 (25 cities)	.89
Population 2,500 to 5,000 (15 cities)	1.68

Cities having no audio-visual departments

Population over 100,000 (12 cities)	\$.11
Population 30,000 to 100,000 (70 cities)	.29
Population 10,000 to 30,000 (188 cities)	.32
Population 5,000 to 10,000 (261 cities)	.38
Population 2,500 to 5,000 (318 cities)	.43

¹ *National Education Association Research Bulletin*, Vol. 24, No. 4, "Audio-Visual Education in City School Systems," December, 1946.

² "Audio-Visual Education in City-School Systems," *National Education Association Research Bulletin*, Vol. 24, No. 4, December, 1946, p. 161.

tional materials, equipment, and administration in cities of various sizes.

Figures such as these are not too helpful, but they do establish something like bench marks. The important question to ask as one tries to evaluate the financial aspects of an audio-visual instructional materials program is: "Are funds available so that teachers can obtain instructional materials and apparatus which they want and need in their teaching?" If the answer to this question is "Yes," the audio-visual instructional materials program passes the budget test. There is little point to spending a great deal of money for projectors, films, and other kinds of materials if they are not going to be used by the teachers. It goes without saying that *some* initial expenditure is required in order to get started. No school, for example, which does not make certain basic equipment items available to teachers can even get a program underway. No teacher can learn the value of transcriptions unless he has available at least a few, as well as a playback.

3. *Are teachers provided with opportunities to see and examine audio-visual instructional materials?*

Unless teachers in service are provided with an opportunity to see and study new audio-visual instructional materials—or any other kinds of teaching materials for that matter—it is optimistic to expect that these materials will be widely used. This involves making arrangements for individual and committee previews of motion pictures, slidefilms, slides, transcriptions and recordings, and any other types of materials that seem

to be educationally promising. One measure of the success of an in-service training program is the frequency with which teachers have an opportunity to see and become familiar with new teaching materials. This is one of the major responsibilities of whoever assumes leadership in connection with the audio-visual program. He makes it easy, convenient, and pleasant for teachers to find out what new materials are available. This requires administrative and social ingenuity as well as bulletin board notices.

Frequently there are many "side" benefits when teachers study new instructional materials in a committee or group situation. Almost invariably techniques of utilization are discussed. Increasingly valid discriminations are made between good and poor materials. The teachers teach one another.

4. *Can teachers get materials they want when they want them?*

For a long time to come there probably will be administrative problems of a serious sort in the distribution of audio-visual instructional materials. Motion picture films, for example, now are rented by most schools. This often means that decisions must be made as to the kinds of films needed six, eight, or ten months before they will be used. In some schools, too, teachers must worry through an onerous burden of administrative detail in order to get the instructional materials they want. *Anything that the administrator can do to cut this red tape and make it easy for teachers to procure and use audio-visual instructional materials, will be an excellent investment.* In one school the au-

thors know about this administrative elimination of all red tape resulted in a four hundred per cent increase in one year in the use of instructional films.

5. *Is a wide variety of materials being used?*

Individual schools sometimes put great stress upon a single type of audio-visual instructional material. Instructional films, or school journeys, or radio may get all of the attention. Everything we know about curriculum materials indicates that the best teaching is done when a wide variety of materials is used. Radio, films, still pictures, work experience, school journeys, models, maps, charts, mock-ups all make their contribution to good teaching. Certain objectives demand certain types of teaching aids. Every comprehensive objective requires that a variety of instructional materials be used.

What this means for evaluating an audio-visual program is that balance among the various materials is important. Going "all out" for films, for example, with little attention directed to other types of materials is undesirable.

6. *Are teachers being trained in service?*

Several of the "appraisal" questions that already have been discussed pertain to in-service training. Most of us find it easy, because of our background and training, to teach with words. While the basic principles of good instruction are the same when textbooks, or motion picture films or recordings, or maps, or any other type of materials are used, the implementation of these principles frequently requires quite different arrangements. One type

of in-service training that has proved to be of great value involves making it possible for teachers themselves to learn how to operate the equipment that is required by some types of audio-visual instructional materials. Setting up a laboratory for this purpose is specific and fruitful.

If those responsible for the in-service training program are sensitive to the needs of teachers, and keep the program focused on these needs, their efforts are most apt to be rewarded. This requires a good basic understanding of the curriculum, of methodology, and of the psychology of learning. The leader's primary job is to make himself as useful as possible to teachers, helping them do better what they are already trying to do. Little is gained by insisting, somewhat impatiently, that more audio-visual instructional materials should be used. Most teachers are quick to learn that they cannot achieve their instructional objectives if they depend entirely upon verbal teaching. The next step is to help them get and use a variety of materials without becoming nervous wrecks.

Summary

In appraising the success with which audio-visual instructional materials are used in any school or any school system, trend is more important than status. In other words, the frequency with which instructional motion pictures actually are used at any one time is less significant than the fact that within the past year teachers have increased the variety of the materials used in the classroom. This point of view makes it difficult to make much sense out of national norms as an indication of the worth of any particular

audio-visual instructional materials program. A school may be in the upper quarter of schools of its class statistically, but if many of its teachers cannot examine or procure or use the audio-visual instructional materials that they want, the program is relatively ineffective.

Analogously, one school just beginning to explore the possibilities of using a greater variety of instructional materials may look statistically as if very little is happening. If in this school, however, a good in-service training program aimed at the improvement of instruction has been started, and if teachers are *increasingly* provided with opportunities to learn about new audio-visual instructional materials, and best ways for utilizing them, the situation is encouraging.

CHAPTER VII

SELECTED BIBLIOGRAPHY

This bibliography is divided into three parts. The first describes helpful references of a general sort dealing with audio-visual instructional materials. Part two includes references that pay particular attention to certain kinds of audio-visual instructional materials. Part three gives references appropriate to specific fields of instruction.

Part I. *General references on audio-visual instructional materials.*

- Dale, Edgar. *Audio-Visual Methods in Teaching*, New York: Dryden Press, Inc., 1946. p. 546.
- Dent, Ellsworth C. *The Audio-Visual Handbook*, Chicago: Society for Visual Education, 1946. p. 226.
- Haas, Kenneth B. and Packer, Harry Q. *Preparation and Use of Visual Aids*, New York: Prentice-Hall, Inc., 1946. p. xii—224.
- Hoban, C. F., Hoban, C. F., Jr. and Zisman, S. B. *Visualizing the Curriculum*, New York: Dryden Press, Inc., 1937. p. 304.
- Kirk, Marguerite, et al. "Other Aids to Learning," Natl. Soc. for Study of Educ. 42nd Yrbk. Part II. Libr. Chicago, 1943. pp. 176—218.

- McKnown, Harry C. and Roberts, Albin B. *Audio-Visual Aids to Instruction*, New York: McGraw-Hill Book Co., 1940. 385 pp.
- Schreiber, R. E. and Calvert, L. *Building an Audio Visual Program*, Chicago: Science Research Associates, 1946. p. 103.

Periodicals dealing with audio-visual instructional materials and related matters

- Business Screen*, Eight issues a year, Business Screen Magazines, Inc., 157 E. Erie St., Chicago 11, Illinois.
- Educational Film Guide*, published monthly from September through April, annual cumulation issued in June. The H. W. Wilson Co., 950 University Ave., New York.
- Educational Screen*, monthly except July and August. The Educational Screen, Inc., 64 E. Lake St., Chicago, Illinois.
- Film and Radio Guide*, published nine times a year, October to June. Educational and Recreational Guides, Inc., 172 Renner Ave., Newark, N. Y.
- The Journal of the Association for Education by Radio*, published monthly except June, July and August by the Association for Education by Radio. Association and Business Office: 228 North LaSalle Street, Chicago 1, Illinois.
- See and Hear*, nine issues a year, Audio-Visual Publications, Inc., 157 E. Erie St., Chicago 11, Illinois.

Extension Division Newsletters from the Universities of Indiana, Illinois, Wisconsin, Iowa, Missouri, Kansas, Nebraska, Minnesota

Part II. *References describing particular types of materials, their production, administration, and utilization.*

The School Journey, Dramatics, etc.

- Ayteo, Henry C. *The Excursion as a Teaching Technique*, Bureau of Publications, Teachers College, Columbia University, New York, 1939. p. 225.

Objects, Specimens, Models—The Museum

- Moore, Eleanor M. *Youth in Museums*, Philadelphia, Pa.: University of Pennsylvania Press, 1941. p. 115.
- Ramsey, Grace F. *Educational Work in Museums of the United States*, New York: H. W. Wilson Co., 1938. p. 289.

Motion Pictures

- Arnsperger, Varney C. *Measuring the Effectiveness of Sound Pictures as Teaching Aids*, New York: Bureau of Publications, Teachers College, Columbia University, 1933. Pp. vii—156.
- Bell, Reginald, et al. *Motion Pictures in a Mod-*

ern Curriculum, American Council on Education, Washington, D. C., 1941. p. 179.

Benoit-Levy, Jean. *The Art of the Motion Picture*, New York: Coward-McCann, 1946. p. 263.

Dale, Edgar, et al. *Motion Pictures in Education*, New York: H. W. Wilson Co., 1938. p. 472.

Devereux, F. L., et al. *The Educational Talking Picture*, Chicago: University of Chicago Press, 1935. p. 222.

Fern, George H. and Robbins, Eldon. *Teaching with Films*, Milwaukee: Bruce Publishing Co., 1946. xiii—146 pp.

Hoban, C. F. *Focus on Learning*, Washington, D. C.: American Council on Education, 1942. p. 172.

McDonald, Gerald D. *Educational Motion Pictures and Libraries*, Chicago: American Library Association, 1942. xii—184 pp.

Selected Educational Motion Pictures, A Descriptive Encyclopaedia, Washington, D. C. American Council on Education, 1942. p. 372.

Tower Hill Staff. *A School Uses Motion Pictures*, Washington, D. C.: American Council on Education, 1940. p. 114.

Radio and Transcriptions, Recordings, Television

Bathurst, Effie G. *Phonograph Records as an Aid to Learning in Rural and Elementary Schools*, Albany, New York: University of the State of New York, 1943. p. 171.

Cooper, Isabella M. *Bibliography on Educational Broadcasting*, Chicago, Illinois: University of Chicago Press, 1942. ix—576 pp.

Hubbell, Richard. *Television Programming and Production*, New York: Murray Hill Books, Inc., 1945. xii—207 pp.

Laine, Elizabeth. *Motion Pictures and Radio*, New York: McGraw-Hill Book Co., Inc., 1938. x—165 pp.

Levenson, William. *Teaching Through Radio*, New York: Farrar & Rinehart, 1945. p. 474.

Radio in the Classroom, Madison, Wisconsin: University of Wisconsin Press, 1942. p. 203.

Radio and Television Bibliography, New York: Columbia Broadcasting System, 1941. 79 pp.

Waller, Judith C. *Radio, the Fifth Estate*, Boston, Houghton-Mifflin Co., 1946. xiv—481 pp.

Woelfel, Norman and Tyler, Keith. *Radio and the School*, Yonkers-on-Hudson, New York: World Book Co., 1945. 358 pp.

Still pictures, filmstrips, slides, graphic mats, etc.

Arkin, Herbert and Colton, Raymond R. *Graphs: How to Make and Use Them*, New York: Harper & Bros., 1940. xvii—236 pp.

Hamilton, G. E. *How to Make Handmade Lantern Slides*, Keystone View Co., Meadville, Pa., 1940.

Mich, Daniel D. and Eberman, Edwin. *The Technique of the Picture Story*, New York: McGraw-Hill Book Co., 1945. 239 pp.

Perry, Raymond W. *Blackboard Illustration*, Peoria: Manual Arts Press, 1945. 48 pp.

Part III. References appropriate to specific fields of instruction.

Art Education

Commission on Secondary School Curriculum. *The Visual Arts in General Education*, New York: D. Appleton-Century Co., Inc., 1940. x—166 pp.

Adult Education

Committee on Community Use of Film. *Making Films Work for Your Community*, New York: Educational Film Library Association, 1946. 71 pp.

Adam, T. R. *Motion Pictures in Adult Education*, New York: American Association for Adult Education, 1940. v—94 pp.

Mathematics

Committee on Multi-Sensory Aids of the National Council of Teachers of Mathematics. *Multi-Sensory Aids in the Teaching of Mathematics*. New York: Bureau of Publications, Teachers College, Columbia University, 1945. xv—455 pp.

Religious Education

Rogers, William L. and Vieth, Paul H. *Visual Aids in the Church*, Philadelphia: Christian Education Press, 1946. vii—214 pp.

Social Studies

Cochran, Blake. *Films on War and American Policy*, Washington: American Council on Education, 1940. vii—65 pp.

Commission on Motion Pictures in Education. *Motion Pictures for Postwar Education*, Washington: American Council on Education, 1944. v—25 pp.

Hartley, William H. *Selected Films for American History and Problems*, New York: Bureau of Publication, Teachers College, Columbia University, 1940. ix—275 pp.

CHAPTER VIII

SELECTED SOURCES OF EQUIPMENT AND MATERIALS

This is not a complete list of sources. It is representative of the better com-

panies and organizations from which equipment and materials may be obtained. The absence of any company or organization does not necessarily imply any lack of quality.

I. SOURCES OF EQUIPMENT

Opaque Projectors:

American Optical Company, Instrument Division, Buffalo, N. Y.
Bausch and Lomb Optical Company, Rochester, N. Y.
Charles Beseler Company, 131 East 23rd St., New York, N. Y.

Visual Cast Projectors:

Dayton Acme Company, Cincinnati, Ohio
Charles Beseler Company, 131 East 23rd St., New York, N. Y.

3 $\frac{1}{4}$ " X 4" Slide Projectors:

American Optical Company, Instrument Division, Buffalo, N. Y.
Bausch and Lomb Optical Company, Rochester, N. Y.
Charles Beseler Company, 131 East 23rd St., New York, N. Y.
Keystone View Company, Meadville, Pa.

2" X 2" Slide Projectors:

Bell and Howell Company, 7000 McCormick Rd., Chicago, Ill.
Eastman Kodak Company, Rochester, N. Y.
Society for Visual Education, Inc., 100 East Ohio St., Chicago 11, Ill.

Filmstrip Projectors:

Ampro Corporation, 2839 North Western Ave., Chicago, Ill.
DeVry Corporation, 1111 Armitage Ave., Chicago, Ill.
Society for Visual Education, Inc., 100 East Ohio St., Chicago 11, Ill.

16 mm. Motion Picture Projectors:

Ampro Corporation, 2839 North Western Ave., Chicago, Ill.
Bell and Howell Company, 7000 McCormick Rd., Chicago, Ill.
Eastman Kodak Company, Rochester, N. Y.
Kolograph Corporation, 188 West Randolph St., Chicago, Ill.
Movie-Mite Corporation, 1105 East 15th St., Kansas City 6, Mo.
Radio Corporation of America, RCA-Victor Division, Camden, N. J.
Victor Animatograph Company, Davenport, Iowa

Projection Screens:

Da-Lite Screen Company, 2723 North Pulaski Rd., Chicago, Ill.
National Theatre Supply Company, 90 Gold St., New York, N. Y.
Radiant Manufacturing Company, 1144 West Superior St., Chicago, Ill.

Record and Transcription Playbacks:

Farnsworth Radio and Television Company, Fort Wayne, Ind.
Magnavox Company, Inc., Fort Wayne, Ind.
Charles Micherson, Inc., 67 West 44th St., New York 18, N. Y.
Sandwick-Bowen Corporation, Bethesda 14, Md.
Emerson Radio and Phonograph Corporation, New York, N. Y.
Presto Recording Corporation, 242 West 55th St., New York, N. Y.

Disk Recorders:

Presto Recording Corporation, 242 West 55th St. New York, N. Y.
Fairchild Camera and Instrument Corporation, 88-89 Van Wyck Blvd., Jamaica 1, N. Y.
Rek-O-Kut Company, 146 Grand St., New York 13, N. Y.
Radio Corporation of America, RCA-Victor Division, Camden, N. J.

Magnetic Recorder:

Brush Development Company, 3405 Perkins Ave., Cleveland 14, Ohio
Lear, Inc., 110 Ionia Ave., N.W., Grand Rapids, Mich.
Pierce Wire Recorder Corporation, 1328 Sherman Ave., Evanston, Ill.
General Electric Company, Rochester, N. Y.
Western Electric Company, 250 West 57th St. New York, N. Y.

Radio Receivers:

Admiral Corporation, 3800 West Cortland Ave., Chicago, Ill.
Emerson Radio and Phonograph Corporation, 111 Eighth Ave., New York, N. Y.
Farnsworth Radio and Television Company, Fort Wayne, Ind.
Magnavox Company, Inc., Fort Wayne, Ind.
Radio Corporation of America, RCA-Victor Division, Camden, N. J.
Westinghouse Electric Company, Pittsburgh, Pa.
Stromberg-Carlson Manufacturing Company, 100 Carlson Rd., Rochester, N. Y.

School Radio Sound Systems:

Magnavox Company, Inc., Fort Wayne, Ind.
Radio Corporation of America, RCA-Victor Division, Camden, N. J.

Stromberg-Carlson Manufacturing Company,
100 Carlson Rd., Rochester, N. Y.
Webster-Rowland Company, Chicago, Ill.

Sound Amplifying Equipment:

David Bogen Company, Inc., 663 Broadway,
New York, N. Y.
Magnavox Company, Inc., Fort Wayne, Ind.
Operadio Manufacturing Company, St. Charles,
Ill.

Radio Corporation of America, RCA-Victor Di-
vision, Camden, N. J.
Stromberg-Carlson Manufacturing Company,
100 Carlson Rd., Rochester, N. Y.
Webster-Rowland Company, Chicago, Ill.

Broadcast Audio Equipment:

Collins Radio Company, 11 West 42nd St., New
York 18, N. Y.
General Electric Company, Syracuse 1, N. Y.
Langevin Company, New York 23, N. Y.
Radio Corporation of America, RCA-Victor Di-
vision, Camden, N. J.
Western Electric Company, Distributed through
Graybar Electric Company, 420 Lexington
Ave., New York 17, N. Y.

II. SOURCES OF MATERIALS

Basic Sources:

Teachers will find the film libraries of their own school systems, state universities and state departments of education the best sources of information concerning educational films. For example, the Ohio Slide and Film Exchange of the State Department of Education serves the schools of that state. In many states, colleges and universities have established excellent film libraries, and distribute films on a rental basis both within and outside the state. A few of these are: Visual Aids Extension Division, Indiana University, Bloomington, Ind.; New York University Film Library, 71 Washington Square South, New York, N. Y.; University of California, Extension Division, Berkeley, Calif.

United States Government Films, Castle Films, Division of United World Films. New York: 30 Rockefeller Plaza. Free. Catalogs describing the U. S. Office of Education Visual Training Units, Army and Navy Training Films, and U. S. Department of Agriculture films.

Note: Each of several government agencies issues its own catalog; for example: U. S. Department of Agriculture, U. S. Department of Public Health, U. S. Bureau of Mines.

Educational Film Guide. New York: H. W. Wilson, 950 University Ave. Cumulated annual catalog with supplement service, \$3.00; cata-

log without supplement service, \$2.00. Title index, subject classification, brief descriptions, frequently evaluation comments.

Educators Guide to Free Films. Randolph, Wis.; Educators Progress Service. \$5.00. Revised annually. Lists films, and slide films. Title index, subject classification, cross-index, and brief descriptions.

Keystone View Company Catalogs. Meadville, Pa.: Keystone View Company. Free. Extensive listing of 3½"×4" slides; materials and directions for slide-making.

One Thousand and One (The Blue Book of Non-Theatrical Films), Chicago: The Educational Screen, 64 East Lake St., \$1.00. Annual listing of films, classified in 162 subject groups.

S. V. E. Educational Motion Picture Catalog. Chicago: Society for Visual Education, Inc., 100 East Ohio St., Free. Brief descriptions of educational films, film strips, and 2"×2" slides under topical headings.

Radio Program Listings:

American Broadcasting Company, New York, N. Y. Periodic outline of programs.

Columbia Broadcasting System, Inc., 485 Madison Ave., New York 22, N. Y. Advance programs and teachers' manuals for American School of the Air series. Monthly service schedules. Free.

Mutual Broadcasting Company, 1440 Broadway, New York, N. Y. Monthly service schedules. Free.

National Broadcasting Company, RCA Building Radio City, New York, N. Y. Advance program schedules and teachers' handbooks for University of the Air programs. Twenty-five cents per handbook. Monthly service schedules. Free.

Your own state school of the air bulletins and teachers' manuals. Examples: Ohio State University, University of Wisconsin, Indiana University, University of Minnesota, Purdue University.

Copies of broadcasts. Printed copies of the following series are available for a small fee, usually ten cents: "University of Chicago Round Table," American Broadcasting Company's "America's Town Meeting," Mutual's "American Forum of the Air."

Educational Recordings (phonograph records and transcriptions):

Recordings for School Use: A Catalog of Appraisals, by J. Robert Miles. Yonkers-on-Hudson, N. Y.: World Book Company, 1942. \$1.25. Annotates and appraises the recordings listed. Also deals with utilization of recordings, facts about recordings and equipment, selection and operation of record players.

Transcription Exchange Service. Washington, D. C.: Transcription Exchange, U. S. Office of Education. Free. Catalog of transcriptions and recordings available to schools for rent or loan; many recorded broadcasts.

Other Catalogs. Some large companies producing and distributing 78 r.p.m. phonograph records: Columbia Recording Corporation, 1473 Barnum Ave., Bridgeport, Conn.; Decca Records, Inc., 50 West 57th St., New York, N. Y.; General Records Company, 1600 Broadway, New York, N. Y.; RCA-Victor Records, Inc., Camden, N. J.

Free and Inexpensive Teaching Aids:

Aids to Teaching About the United Nations. Office of Press and Radio Relations, National Education Association, 1201 Sixteenth St., N.W., Washington 6, D. C., 1946. Ten cents.

Bibliography on Audio-Visual Instructional Materials for Teachers in the Elementary School, compiled by Constance Weinman. New York: Bureau of Publications, Teachers College, Columbia University. 1947. Fifty cents. Provides comprehensive lists of references and sources. Includes a number of out-of-print sources which may still be found in libraries.

Catalog of Business Sponsored Educational Materials for Teachers in the Elementary School. New York: Committee on Consumer Relations in Advertising, Inc., 420 Lexington Ave. 1945. \$2.00, 25 percent educational discount. Annotated lists of pictures, posters, movies, exhibits, etc., which are distributed without cost.

Curriculum Materials (Mimeographed). Compiled by J. G. Foukes and D. A. Morgan. Randolph, Wis.: Educators Progress Service, 1946. \$3.50. Comprehensive listing of teaching materials.

Educators Index to Free Materials. Comprehensive annotated listing organized under subject headings. Randolph, Wis.: Educators Progress Service. \$17.50, annual rate; \$27.00 cash, three year subscription; other payment plans.

"Enriched Teaching Series," by Woodring et al., New York: Bureau of Publications, Teachers College, Columbia University. Titles available: *Enriched Teaching of Mathematics in the High School.* 1938. \$1.75. *Enriched Teaching of Science in the High School.* 1941. \$2.00.

Enrichment Materials for Teachers, compiled by Robert DeKieffer, Evanston, Ill.: Curriculum Laboratory, School of Education, Northwestern University, Service Bulletin No. 7, 1941. Fifty cents. Comprehensive bibliography of pamphlets, maps, charts, posters, movies, slides, exhibits. Chart form, sources, age levels for which most suitable. No descriptions.

Handbook of Inexpensive Resources and Services

for Ohio Elementary Teachers, compiled by the Department of Elementary School Principals of the Ohio Education Association. Columbus, Ohio: Ohio Education Association, 215 East Broad St., 1944. Free.

Index of Free Teaching Aids, by Brose Phillips. Harrisburg, Ill.: Free Teaching Aids Company. 1945. \$2.60. Lists by topics a variety of free teaching materials.

Industrial Arts Cooperative Service, 340 Amsterdam Ave., New York, N. Y. A non-profit organization which makes available at minimum cost directions for making some visual materials, accounts of teaching unit, etc. Membership fee varies with service desired.

One Dollar or Less: Inexpensive Books for School Libraries. Washington, D. C.: U. S. Office of Education, Pamphlet No. 88. 1940. Five cents. Lists bibliographies of ten cent booklets and other inexpensive books.

"Other Aids to Learning (Bibliography)," by M. E. Kirk, et al. Forty-second yearbook, National Society for the Study of Education, Part II, 1943. Pp. 176-218.

The Picture Collection, by Margaret Frebault. New York: H. W. Wilson Company, 950 University Ave., 1943. \$1.25. A list of sources of pictures, with information on processing, filing, and giving effective service.

Public Affairs Pamphlets. U. S. Office of Education Bulletin No. 3, 1937. Washington, D. C.: Superintendent of Documents. Ten cents. This bulletin and supplement give annotated listings of 1212 pamphlets on political, economic, social and international affairs.

Source List of Audio-Visual Aids. Albany, N. Y.: Bureau of Audio-Visual Aids, New York State Department of Education. Circular No. 5, Revised 1943.

Sources of Free and Inexpensive Teaching Aids, by Bruce Miller. Ontario, Calif.: The Author, Box 222. \$1.00. Sources of all types of aids, including those which pupil and teacher can make.

"Sources of Information for the Audio-Visual Leader," *National Education Association Research Bulletin* 24: 169-170. December, 1946.

"Teaching Aids for Teachers," by Mary Dabney Davis. *School Life*, 24: 144-147, February, 1939. Bibliography of teaching aids.

Teaching Aids Service of the Library, Lili Heimers, Director. New Jersey State Teachers College, Upper Montclair, N. J. Issues booklets on various subjects, each booklet giving annotated listings of picture, exhibits, recordings, films, charts, publications, etc., with prices indicated. An excellent source of information. Send for list of available booklets, which range in price from 25 cents to \$1.00.

PUBLICATIONS OF THE NORTH CENTRAL ASSOCIATION¹

- I. THE NORTH CENTRAL ASSOCIATION QUARTERLY. Editorial Office, 4012 University High School Building, University of Michigan, Ann Arbor, Michigan
- II. Publications produced or sponsored by Committees or Subcommittees of the Commission on Research and Service
 - A. Unit Studies in American Problems—a new and challenging type of classroom text materials sponsored by the Committee on Experimental Units for the use of students in high school social studies classes. American Education Press, 400 South Front Street, Columbus 15, Ohio.
 1. *Why Taxes? What They Buy for Us*, by EDWARD A. KING
 2. *Civil Service: Our Government as an Employer*, by CHESTER C. CARROTHERS
 3. *Democracy and Its Competitors*, by EARL S. KALP and ROBERT M. MORGAN
 4. *Housing in the United States*, by ARCHIE W. TROELSTRUP
 5. *Government in Business*, by MARY P. KEOHANE
 6. *Defense of the Western Hemisphere*, by EARL S. KALP and ROBERT M. MORGAN
 7. *Youth and Jobs*, by DOUGLAS S. WARD and EDITH M. SELBERG
 8. *In the Service with Uncle Sam*, by EARL S. KALP
 9. *Latin America and the World Struggle for Freedom*, by RYLAND W. CRARY
 10. *Conservation of Natural Resources*, by CONWAY L. RHYNE and ELLSWORTH E. LORY
 - B. Unit Studies for Better Learning—McGraw-Hill Book Company, New York.
 1. *Sprouting Your Wings*, by Bruce H. Guild
 - C. Pamphlets produced as outgrowths of committee studies and projects. Distributed from the office of Secretary G. W. Rosenlof, University of Nebraska, Lincoln, Nebraska
 1. A Study of Teacher Certification
 2. Better Colleges, Better Teachers, The Macmillan Co. New York
 3. A Study of In-Service Education
 4. *Attacking Reading Problems in Secondary Schools* (A new type of publication for teachers; a practical guide for classroom practices).
 5. *Developing Intergroup Relations in School and Community Life*
 - D. Syllabus—*Functional Health Teaching*, by LYND A. M. WEBER. Published and distributed by Ginn and Company, Chicago
- III. Publications of the Commission on Secondary Schools. Distributed free to members of the Commission and member schools
 - A. *Policies, Regulations, and Criteria for the Approval of Secondary Schools*
 - B. *Handbook for State Chairmen and Reviewing Committees*
- IV. Publications Sponsored by the Commission on Colleges and Universities
 - A. *Evaluation of Higher Institutions*, Vols. 1-7. Chicago: University of Chicago Press
 1. *Principles of Accrediting Higher Institutions*, by GEORGE F. ZOOK and M. E. HAGGERTY, 1936. Pp. 202. \$2.00
 2. *The Faculty*, by M. E. HAGGERTY, 1937. Pp. v+218. \$2.00
 3. *The Educational Program*, by M. E. HAGGERTY, 1937. Pp. v+335. \$3.00
 4. *The Library*, by DOUGLAS WAPLES, 1936. Pp. v+86. \$1.00
 5. *Student Personnel Service*, by DONFRED H. GARDNER, 1936. Pp. v+235. \$2.50
 6. *Administration*, by J. D. RUSSELL and F. W. REEVES, 1935. Pp. v+285. \$3.00
 7. *Finance*, by J. D. RUSSELL and F. W. REEVES, 1935. Pp. v+133. \$2.00
 - B. *Revised Manual of Accrediting*, July 1941; including later revised pages. Available from office of Norman Burns, Secretary of the Commission on Colleges and Universities, University of Chicago, 5835 Kimbark Ave., Chicago 37, Illinois. \$3.00.
 - C. *Home Economics in Liberal Arts Colleges*, by CLARA M. BROWN. Published 1943, under joint sponsorship with the American Home Economics Association. \$1.00

¹ Unless otherwise indicated, address communications to the Executive Secretary, North Central Association of Colleges and Secondary Schools, Administration Building, University of Nebraska, Lincoln, Nebraska.

- D. Reprints from the NORTH CENTRAL ASSOCIATION QUARTERLY and other pamphlets available in limited numbers at the office of the Secretary of the Commission on Colleges and Universities without cost
1. "Statement of Policy Relative to the Accrediting of Higher Institutions, Operation of the Accrediting Procedure," July 1, 1941
 2. Annual list of institutions of higher education accredited by the Commission on Colleges and Universities
 3. "Periodicals for the College Library," prepared for the Committee on Revision of Standards by DOUGLAS WAPLES
 4. "Changes in Enrollments over a Fifteen-year Period in Institutions Accredited for 1936-37 by the North Central Association," by WM. J. HAGGERTY and GEO. A. WORKS
 5. "An Analysis of the Library Data of the Higher Institutions of the North Central Association for the Year 1933-34," by WM. J. HAGGERTY and GEO. A. WORKS
 6. "Colleges and Students—A Summary of Data Concerning the Number and Distribution of Students and Higher Institutions in the United States for the Period 1921-22 to 1935-36, with Special Reference to the Territory Served by the North Central Association," by WM. J. HAGGERTY and A. J. BRUMBAUGH
 7. "Professional Education in Physical Education," by D. OBERTEUFFER
 8. "Music Education in Higher Institutions," by ALBERT RIEMENSCHNEIDER
 9. "Nursing Education in Higher Institutions of the North Central Association," by LUCILE PETRY
 10. "The Institutional Purposes of Seventy-five North Central Colleges," by MELVIN W. HYDE and EMIL LEFFLER
 11. "An Analysis of Financial Data of the Higher Institutions of the Association for the Fiscal Year 1939-40," by JOHN OLIVER and A. J. BRUMBAUGH
 12. "A Study of Administrative Functions," by MELVIN W. HYDE and EMIL LEFFLER, January 1943 (mimeographed)
 13. "The Offerings and Facilities in the Natural Sciences in the Liberal Arts Colleges," by ANTON J. CARLSON
 14. "An Analysis of the Library Data of the Higher Institutions for the North Central Association for the Year 1941-42," by D. M. MACKENZIE and A. J. BRUMBAUGH
 15. "Developing the Health Education Program," by the Subcommittee on Health and Physical Fitness of the Committee on Fundamentals.
- V. Publications jointly sponsored by the North Central Association and other educational organizations or agencies
- A. *A Guide to the Evaluation of Educational Experiences in the Armed Services*. Published in 1944, in cooperation with the American Council on Education and eighteen other accrediting and standardizing educational associations. Looseleaf. Order from G. P. Tuttle, 363 Administration Building (W), Urbana, Illinois. \$3.00
 - B. Publications of Cooperative Study of Secondary School Standards. Available from 744 Jackson Place, Washington, D. C.
 1. *Evaluation of Secondary Schools: General Report*, \$3.50
 2. *Evaluation of Secondary Schools: Supplementary Reprints*, \$1.50
 3. *How to Evaluate a Secondary School* (1940 Edition), cloth \$1.25; paper, \$0.90
 4. *Evaluative Criteria* (1940 Edition), cloth \$1.00; paper \$0.60; set of separate pamphlets \$0.05 each
 5. *Educational Temperatures* (1940 Edition), \$0.50
 6. *Evaluation of a Secondary School Library* (1938 Edition), \$0.35
- VI. *A History of the North Central Association*, by CALVIN O. DAVIS, 1945. Pp. xvii+286, \$2.00 plus postage.